IMAGING SYSTEM
BACKGROUND PROCESSOR
USER MANUAL

Version 3.0

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Department of Veterans Affairs
System Design and Development
VISTA Imaging

Preface

The purpose of this manual is to provide users with instructions on using the **V*IST*A** Imaging Background Processor (BP) V. 3.0 software and system components. It includes explanations of the options and controls available from the **V*IST*A** Imaging Background Processor. Instructions are provided about how to perform various system tasks. Additional information about the various **V*IST*A** Imaging components such as servers, workstations, RPC Broker software, and OTG-Disk Extender jukebox software can be found in the **V*IST*A** Imaging Installation Guide.

The **V*IST*A** Imaging System documentation suite includes…

- Release Notes
- Installation Guides
- Security Guide
- Technical Manual
- User Manuals

The **V*IST*A** Imaging Background Processor User Manual is also available at the following Web address:

http://vaww.va.gov/imaging

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Chapter 1 Introduction

1.1 Functional Description

The **V*IST*A** Imaging System is an extension to the Veterans Health Information System Technology Architecture (**V*IST*A**). The **V*IST*A** Imaging Background Processor (BP) runs on a dedicated Windows NT Workstation connected to **V*IST*A** by way of a TCP/IP connection using the **V*IST*A** RPC Broker.

The Background Processor provides the following functions:

- Management of image storage on various shared network devices
- Migration of image files between magnetic (**V*IST*A** Magnetic Cache or VMC) and optical disk jukebox storage units
- Maintenance of adequate free storage space on magnetic storage devices
- Copying of image files to the **V*IST*A** Magnetic Cache (VMC) whenever they are requested by image display workstations
- Validation of **V*IST*A** Imaging network file references
- Configuration of the local **V*IST*A** Imaging site parameters
- Error recovery
- Activity and error logging

1.2 New Windows-based Background Processor Features

1.2.1 V*IST*A Magnetic Cache (VMC) Purge Function

The file contents of each online share are evaluated for local image file type and date of last access. The access age of each individual file is filtered through an extended set of aging criteria controlled by the VAMC's site parameters.

1.2.2 Automatic Write Location Management

At any given time, **V*IST*A** Imaging writes new files to one of two locations: the Image Capture write location or the DICOM write location. When active, the BP periodically evaluates the disk space resources of all online shares and assigns the Image Capture and DICOM write location to the shares with the most disk space. This feature can be toggled off by way of the site parameters.

1.2.3 Site Utilization Messaging

In order to comply with FDA requirements regarding medical device management, the **V***IST***A** Imaging application provides monthly reporting of critical usage elements and version distribution for each VAMC.

1.2.4 Critical Event Messaging

In order to alert key personnel of events that may lead to a compromise of the **V***IST***A** Imaging system functionality, the BP reports automatically upon diminished VMC resources and file size variances. This feature can be used to deliver alert messages to text pagers.

1.2.5 Database Verification Process

The Verifier software's purpose is to detect discrepancies between the Image database and the image files stored on the magnetic (VMC) and optical storage devices. It corrects database image file references, it creates missing derivative image files when possible, and moves related image files to the same jukebox share.

1.2.6 GUI Site Configuration Method

This feature allows site parameters, network location, purge parameters, and BP parameters to be managed by the windows-based Background Processor (BP).

Chapter 2 Starting the Imaging Background Processor

2.1 Requirements for System Access

To use the **V*IST*A** Imaging Background Processor, the user must have…

- An access and verify code for the **V*IST*A** Hospital Information System
- The **V*IST*A** Imaging System menu option (MAG WINDOWS)
- Windows NT security access to the BP workstation and the **V*IST*A** Imaging storage devices

2.2 Overview of Background Processor Operation

The **V*IST*A** Background Processor option will appear on the Windows Start Menu under Programs on the desktop. The package consists of two different user icons:

- An icon to start the Background Processor
- An icon to start the BP Verifier

To activate a program, follow these steps:

Step	Action	Result
1	• Click on the start button on the Windows NT task bar. • Click on the Programs menu. • Click on the **V*IST*A** Imaging Programs menu. • Click on the Background Processor icon to launch the program.	There will be a pause and then a window should open -- the Background Processor window or the BP Verifier. If there is no RPC broker session currently active, the **V*IST*A** logon window will open.
2	Enter an access and verify code in the **V*IST*A** logon window.	If you have access privileges, the **V*IST*A** logon window will disappear and you will be able to use BP Workstation.

To operate the **V*IST*A** BP Workstation Program, the BP workstation must be set up properly, including…

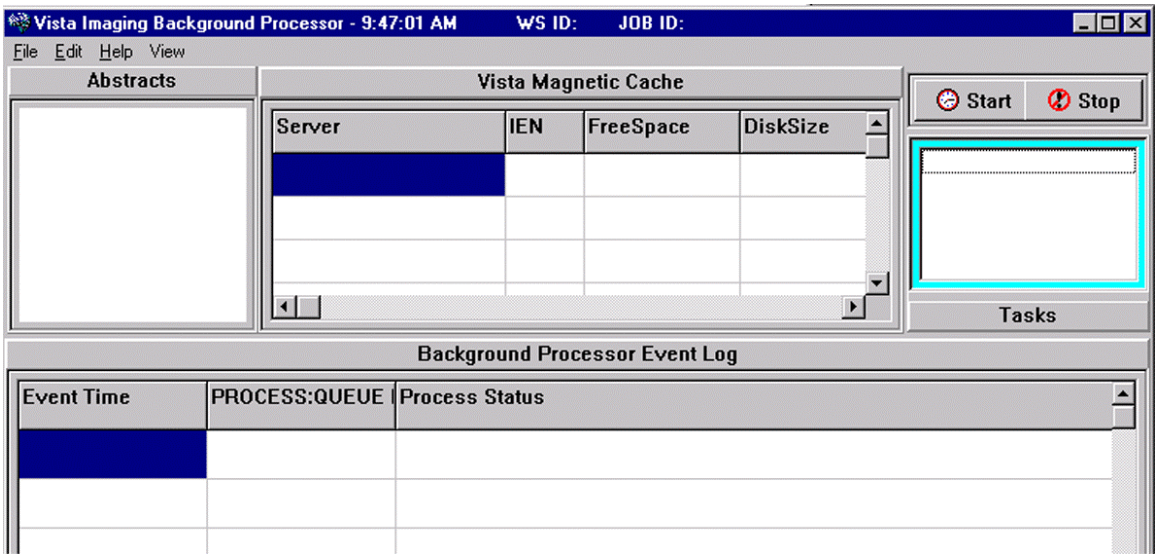
- Proper TCP/IP network configuration. (see Windows NT Network manager)
- Correct BP Workstation configuration (see Chapter 3 Background Processor Operations)

Further information about BP Workstation setup is included in the Imaging System Installation Guide.

Users of the **V***IST***A** Imaging Background Processor can access the Background Processor online help file by pressing the F1 key while the mouse pointer is over the Background Processor window. Pressing the help menu option on the BP window will also launch the online help version of this document.

Chapter 3 Background Processor Operations

3.1 Operation Options



3.1.1 Queue Processing Option

3.1.1.1 Function

The queue processing option evaluates the available space on the current **V*IST*A** Magnetic Cache (VMC), assigns the write location to the share with the freest space, and processes the queue lists assigned to that BP Workstation. These queue lists are displayed in the "*Tasks*" list in the upper right hand corner of the main BP window.

Queue processing may handle any of the following queues, as assigned:

- The JBTOHD queue populates the VMC with images that have been used by the **V*IST*A** Image Display software.
- The PREFET queue populates the VMC with images that were requested based on **V*IST*A** Imaging Display workstation configuration parameters.
- The ABSTRACT queue creates ABS derivative thumbnail files, based on a setting in the **V*IST*A** Imaging System Manager Tool window (see **V*IST*A** Imaging Installation Guide or Imaging System Manager Tools Online Help).
- The JUKEBOX queue copies images to the long-term archival storage device for clinical images.
- The DELETE queue removes erroneous images from either the VMC or the Jukebox.

3.1.1.2 When to Operate and Why

- It is only necessary to configure the BP WS if the site is capturing images for storage on **V*IST*A** Imaging servers.
- Queue processing should operate continuously in order to support the archiving and retrieval processes of the image capture and display workstations.

3.1.1.3 When Not to Operate

- The Background Processor cannot operate during network outages.
- The BP should not be operated during file server malfunctions that result in the loss of connectivity to all **V*IST*A** Magnetic Cache (VMC), or to all Optical Jukebox devices.
- Jukebox maladies such as configuration management tool outages, jammed picker arms, or shortages of formatted platters are all reasons to avoid having the BP queue processor active.
- The BP should not be operated during **V*IST*A** hospital system outages.

3.1.1.4 Operational Procedures

The BP Workstation operator should have network security privileges to access the VMC and jukebox devices.

3.1.1.4.1 Configuration

- The BP workstation should be added to the BP Workstation file (see Add / Remove BP Workstation) and be configured for queue processing (see BP Workstation Configuration).
- The **V*IST*A** Magnetic Cache and the Jukebox devices must be configured (see Network Location Manager).

The operator will see the following message box when the BP application is launched from the **V*IST*A** Imaging Programs menu if the workstation has not previously been configured:

3.1.1.4.2 Starting Queue Processing

- The Queue processing option is initiated by clicking with the mouse on the "*Start*" button on the upper right hand corner of the main Background Processor window.

- The '*Tasks'* list displays the Queue processing tasks assigned to the BP workstation and the number of each to be processed. The **V***IST***A** Magnetic Cache grid displays the online disk space capacity and the available disk space. The '*BP Event*' grid displays the filepath to the BackProc.log file on its title bar. The grid itself displays all file processing activity that is occurring. These logged events display the time and date, the queue type and queue number, the source and destination of each file transfer, creation or deletion. The result of each activity is displayed on a subsequent grid line.

3.1.2 Open Log File Option

3.1.2.1 Function

The Open Log File option provides a method of searching any of the log files associated with the BP Workstation activities and the log file archives. The log files include error and operational events for BP Queue Processing, BP Purge, and BP Verification options. The option provides search, view, print and file save functions.

3.1.2.2 When to Operate and Why

This option can be used to assist trouble shooting and documenting **V***IST***A** Imaging System malfunctions.

3.1.2.3 When Not to Operate

This option is not available on the BP main window when the '*Queue processing*' option is active.

3.1.2.4 Operational Procedures

See '*Evaluating Event Logs*' in the '*Troubleshooting*' chapter of this manual.

3.1.3 Toggle Log File Option

3.1.3.1 Function

This option enables and disables the recording of BP events in a text file on the BP Workstation. The option is turned on by default when the BP application is launched from the **V***IST***A** Imaging Programs menu.

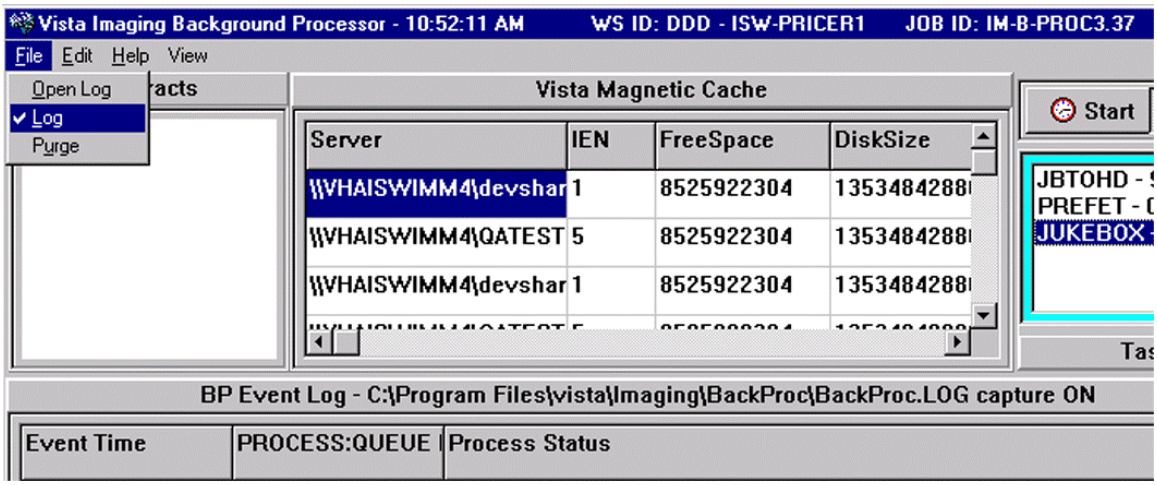
3.1.3.2 When to Operate and Why

It is recommended that log file activity never be disabled. The log record of BP activity can be a valuable resource for trouble shooting **V***IST***A** Imaging System malfunctions.

3.1.3.3 When Not to Operate

This option not available on the BP main window when the '*Queue processing*' option is active.

3.1.3.4 Operational Procedures



- When the 'File|Log' option is checked, clicking the option with the left mouse button state will toggle the option OFF. When the option is ON, the filename and filepath are displayed on the BP Event Log title bar as shown above.

- The log file archives itself at midnight to a file named BackProcYYYY_MM_DD where YYYY is the 4 digit year, MM is the 2digit month and DD is the 2 digit day.

- Twenty days of these event logs are kept on the BP Workstation in the application subdirectory.

- The standard installation subdirectory is 'C:\Program Files\Vista\Imaging\BackProc\'. The files are automatically purged from this location. If longer activity records are desired, then the files should be copied to another location within the 20 day cycle, before they are purged.

3.1.4 V*IST*A Magnetic Cache (VMC) Purge Option

3.1.4.1 Function

This option recovers disk space on the designated **V***IST***A** Magnetic Cache shares. Free space is necessary for newly acquired and recently viewed images. The Purge option validates that a copy of the image or image derivative file is on the Jukebox before purging. The files are evaluated by date of last access and by file type against the aging parameters specified by the **V***IST***A** Imaging system manager using the Purge parameter option.

3.1.4.2 When to Operate and Why

It is suggested that the VMC RAID devices operate more efficiently when 10 percent of disk capacity is available. Some degradation occurs as the storage devices fill and files become fragmented. The system is designed to notify the **V***IST***A** Imaging system manager and the ADPAC when VMC resources have reached a critical level (default is 5% free space remaining). This value is too low for normal workflow. At this point, the Automatic Write Location update option no longer operates.

3.1.4.3 When Not to Operate

Do NOT operate the purge when Jukebox or VMC access is compromised. Excessive JUKEBOX copies will automatically be queued by the BP Purge as a result of not being able to verify copies on the Jukebox. The purge will be ineffective if it does not have access to the VMC it is intended to purge. The BP purge will not operate if the **V*IST*A** hospital system is not available, the RPC Broker Listener is not active, or the network is down.

3.1.4.4 Operational Procedures

See the '*BP Purge*' chapter in this manual.

3.1.5 Add and Remove BP Workstations

3.1.5.1 Function Option

This menu option provides a method of adding and removing Background Processor Workstations (BPWS) to the **V*IST*A** Imaging System.

3.1.5.2 When to Operate and Why

This option should be used when installing the **V*IST*A** Imaging System, when retiring the current BPWS, or when adding a 'hot' spare BPWS.

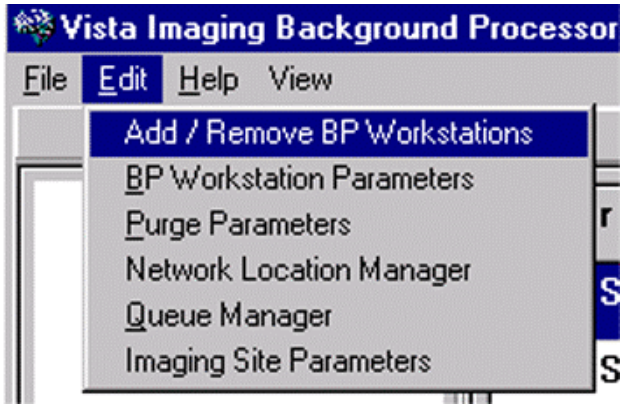
3.1.5.3 When Not to Operate

It is recommended that only one Queue Processing BPWS be active at a time. It is very important that the Queue processing activity prioritize jukebox storage and retrieval requests. This optimization mechanism is needed to deliver images to the health care provider as quickly as possible. Independent queue processing would increase concurrent requests, thus causing a bottleneck in the system at the point of the Jukebox robotics. It is the purpose behind the queue file design to put these processes in the background, prioritize the order, and thus optimize the system.

This option not available on the BP main window when the '*Queue processing*' option is active.

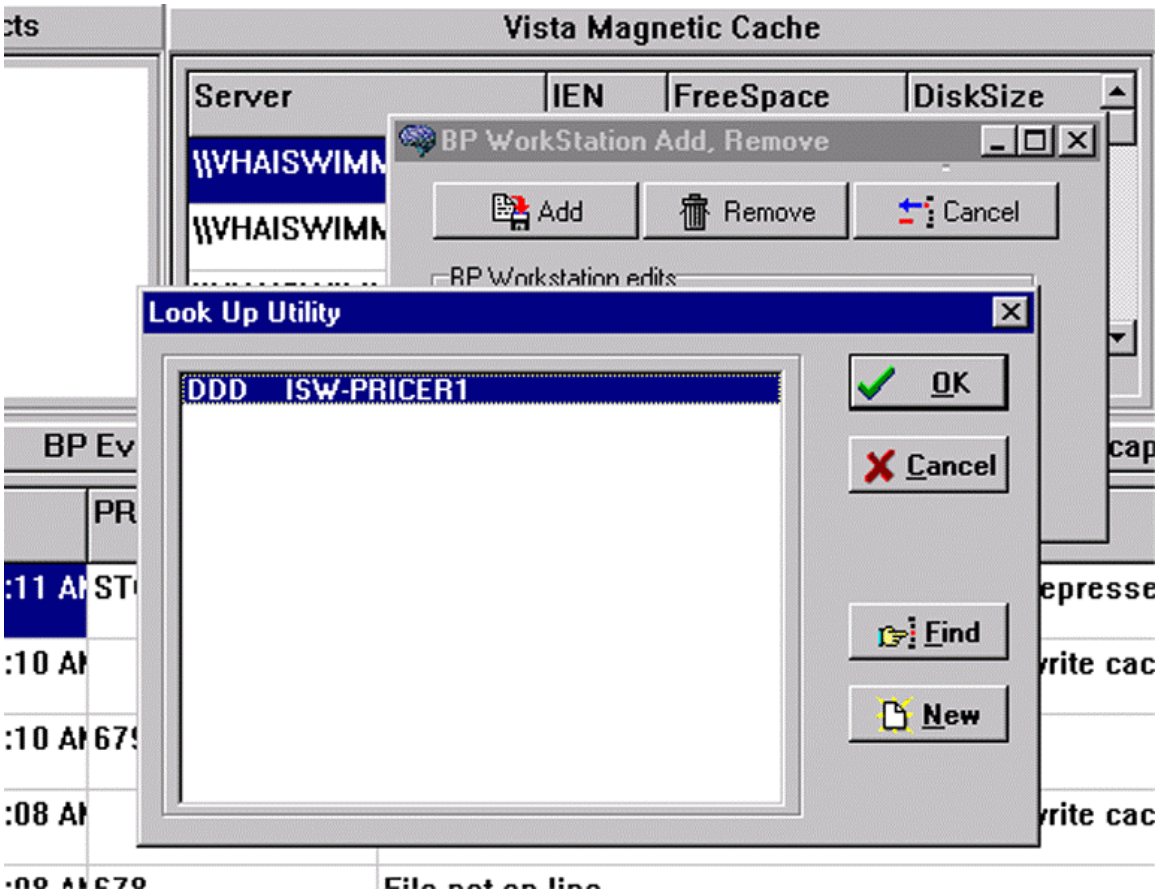
3.1.5.4 Operational procedures

Select Edit| Add / Remove BP Workstations from the BP main window.

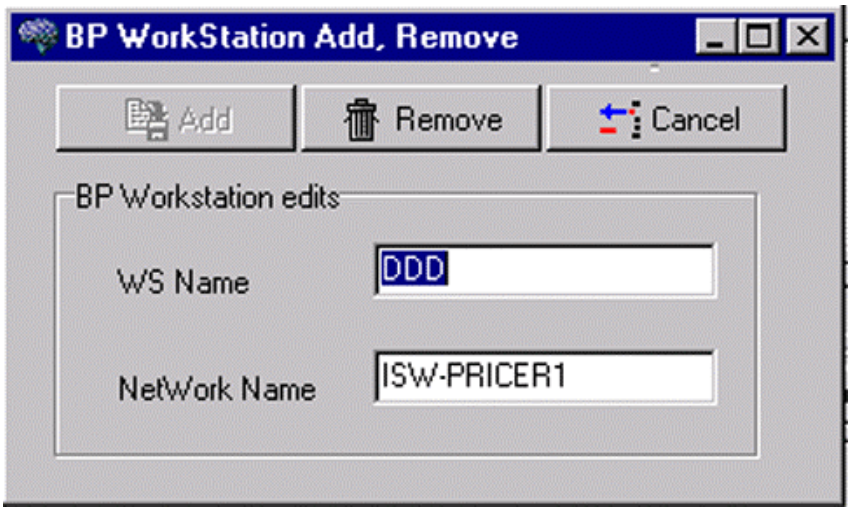


3.1.5.4.1 Removing a BPWS

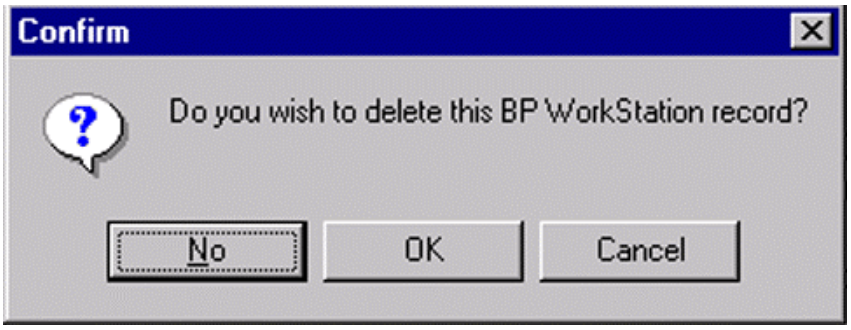
1. Select a BPWS with the Lookup Utility by highlighting its name either with the mouse or the keyboard up or down key. Then click on the 'OK' button.



2. Click the Remove button.



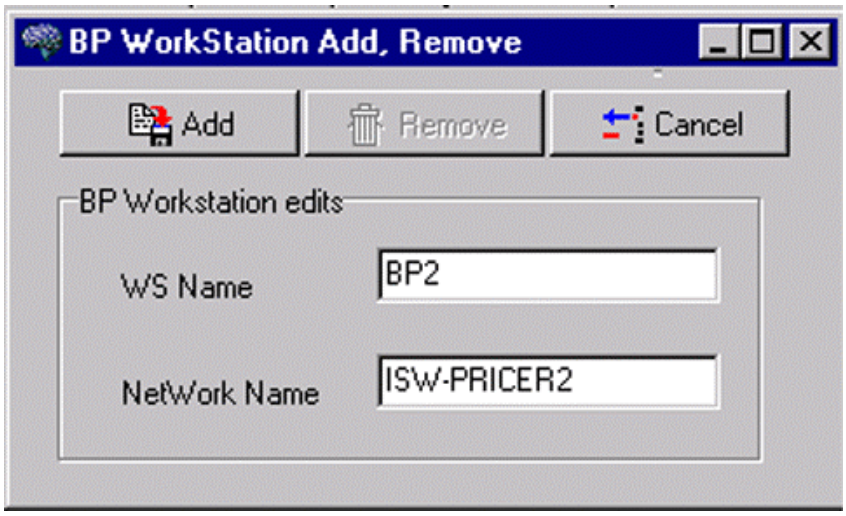
3. Click on the 'OK' button to complete:



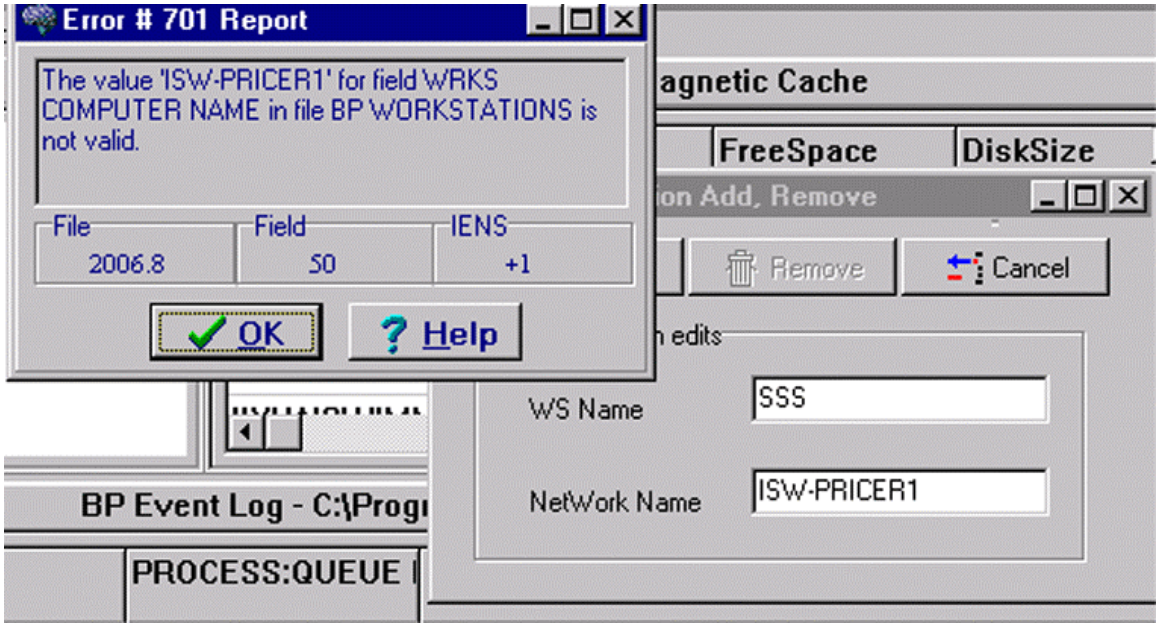
3.1.5.4.2 Adding a New Workstation

1. Click the 'New' button on the Lookup Utility (as shown in the Lookup Utility illustration). The Workstation (WS) Name requires a unique 3-character name. The Network Name must be the actual Windows NT name of the BPWS and it must be unique.

2. Click the 'Add' button in order to store the new BPWS entry.



If a name value is invalid, a Fileman message box appears as shown below:



3.1.6 BP Workstation Configuration Option

3.1.6.1 Function

- The BP Workstation Configuration edit window allows the user to view and edit the individual BPWS parameters related to the queue types to be processed. It also toggles the auto write location update feature on and off.
- Most sites will find that a single BP workstation provides optimal performance. However, the **V*IST*A** Imaging System can support multiple simultaneously operating BP processors under exceptional circumstances.
- This option configures one or more BPWS configurations. Only one background processor can be configured to manage each background processor activity. The software does not permit redundant assignments of BP activities.

3.1.6.2 When to Operate and Why

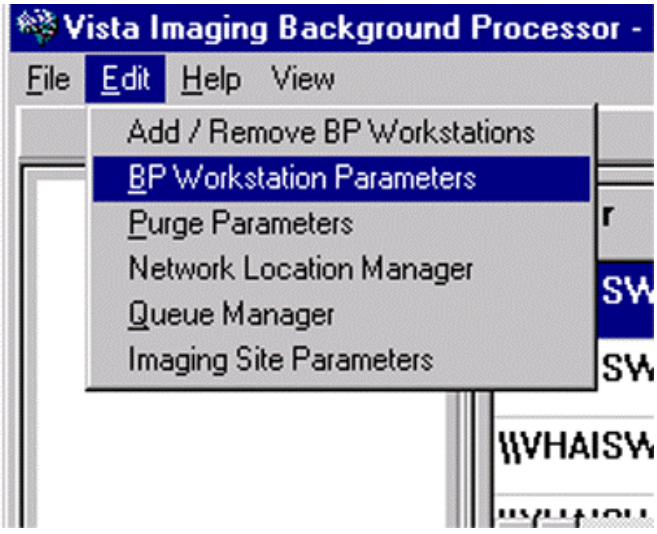
- BPWS configuration should be performed when first installing the **V*IST*A** Imaging System.
- When PREFET is added to the **V*IST*A** Imaging display workstation configuration, this activity must be checked on the BPWS configuration window in order to have these queue types processed.
- The Auto Write Location check box can be updated here if it is necessary to turn this function on or off.

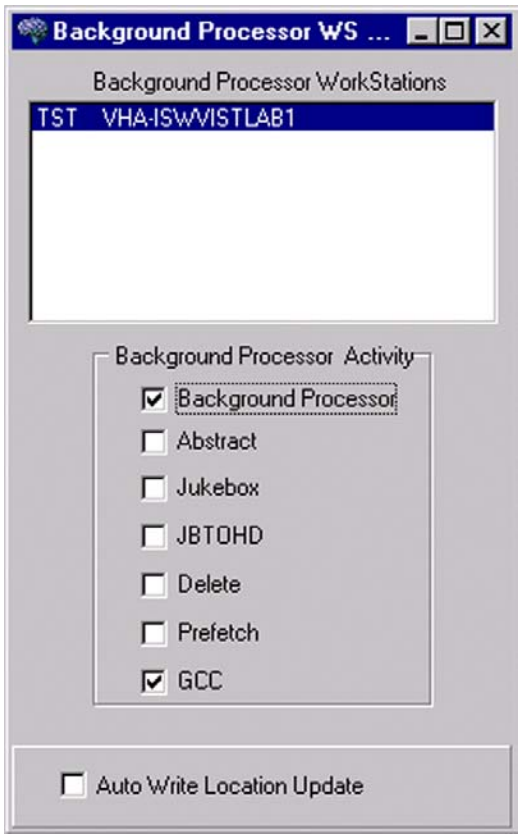
3.1.6.3 When Not to Operate

This option not available on the BP main window when the '*Queue processing*' option is active.

3.1.6.4 Operational Procedures

Select Edit| BP Workstation Parameters from the BP main window.





- Select the BPWS to be configured by clicking or scrolling to select it.
- The Background Processor check box should be checked for any BP workstation that will process queues.
- If an error box appears, be sure that another BP workstation has not already been given this assignment.
- The Jukebox, JBTOHD, and Delete checkboxes should be checked if only one BPWS is operating.
- Prefetch should be selected if the site has configured the clinical display workstations to prefetch. This is not typical.
- Abstracts should only be checked when the workstation setting of at least one capture workstation is "Abstracts created" set to TRUE.
- Most sites will want to check the Auto Network Write Location Update box to allow the BP to automatically set the network write locations optimally.

Note: Current Write Location and Network Write Location are used for the same parameter.

3.1.7 Configure VMC Purge Option

3.1.7.1 Function

This option allows the user to specify the length of time files will remain on the VMC after their date of last access. This time period is specified for different kinds of files. Not all sites capture all the file types specified in the parameter list. The rate of capture, the size of the magnetic cache, and the percentage of each file category, help determine the file retention time.

3.1.7.2 When to Operate and Why

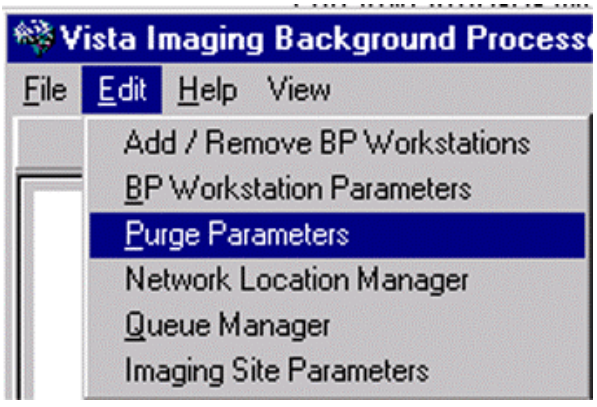
The site should strive to maintain the VMC between 80%and 90% (or 10% and 20% Free space). When the purge process results in the post purge space in excess of this criterion then either the values should be increased to decrease the amount of files removed from the VMC or decreased to remove a larger volume of files from the VMC. The frequency of the purge, the volume of image acquisition, the volume image file retrieval, the use of 'PREFET', and the VMC disk space capacity are all factors that will determine the best set of values for an individual site. Ideally, at site should be able to maintain two or three years of Abstracts on the VMC, 6 months of Full files, and then 30 to 60 days of BIG files. VMC sizing will heavily influence the systems ability to meet this standard.

3.1.7.3 When Not to Operate

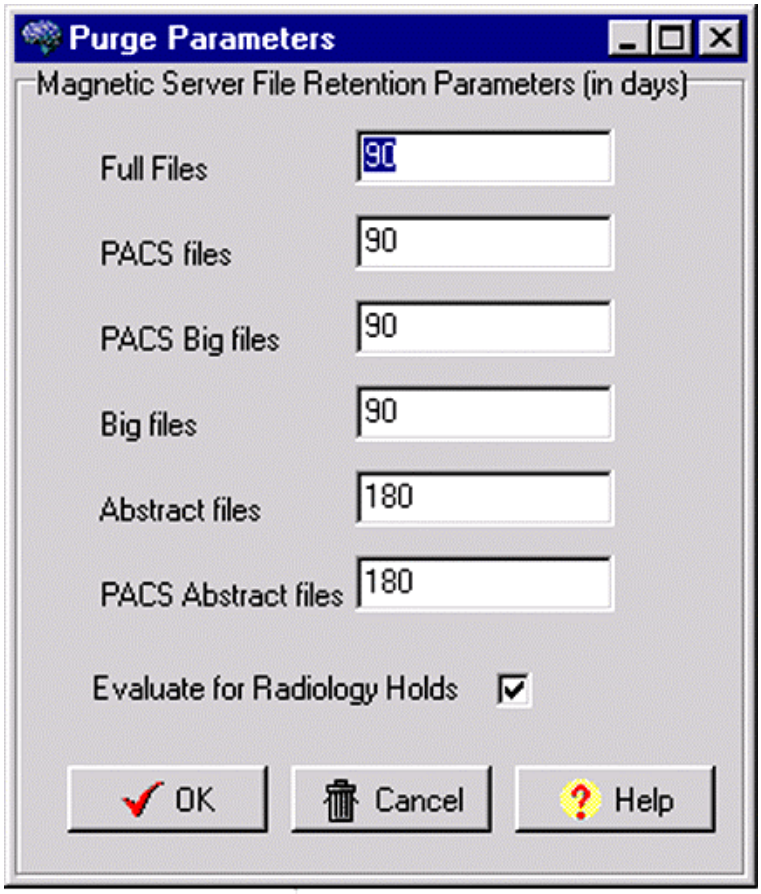
If the frequency and the results of purging are acceptable then it is not advisable to change the purge values.

3.1.7.4 Operational Procedures

1. From the main background Processor window, select the Purge Parameters option.



2. **Enter retention time for each file type**. Enter the number of days that each file type should remain on the **V*IST*A** Magnetic Cache (VMC) from the time the individual files where last accessed by a clinical user (as opposed to a BP operation) to the time the purge is executed and the files are evaluated by the purge process.



- Full files are those designated at the time of capture as the primary source files used by the Clinical Display WS.
- PACS files are those that are imported through the DICOM gateway and shown by the Clinical Display workstation.
- PACS Big files are large files (7-10mb) that have been imported through the DICOM gateway.
- Big files are diagnostic quality image files that are 5-9 mb in size.
- Abstracts are derivative, TGA format files that are about 100 kb in size on average and have and ABS extension.
- PACS Abstracts files have been created from files imported through the DICOM gateway.

3. **Set the Radiology Hold Evaluation Switch**. By checking the "Evaluate for Radiology Holds" checkbox, all image file purge candidates (images that fall within the minimum and maximum access time values) that are associated with Radiology Reports will not be purged if the report has a "Hold" on it. All Radiology Hold images will remain on the VMC.

4. Click on the "Cancel" button to reverse all changes.

Note: See the V*IST*A Imaging website for additional information on server sizing: http://vaww.va.gov/imaging

3.1.8 Network Location Manager Option

3.1.8.1 Function

The Network Location Manager option is used to configure VMC shares, Jukebox shares, and GE/Marquette Muse shares.

3.1.8.2 When to Operate and Why

This option is used during the installation and setup of the **V*IST*A** Imaging System (See the **V*IST*A** Imaging Installation Guide). It is used to make new shares available to the system.

It is also used for the following maintenance functions:

- Shares can be taken offline when maintenance is necessary and continuous operation of **V*IST*A** Imaging is desired.

- Shares may be isolated temporarily by setting them as "router shares" for the purpose of excluding them from the purge and auto write location processes.

- GE/Marquette Muse shares may require version and numbering updates.

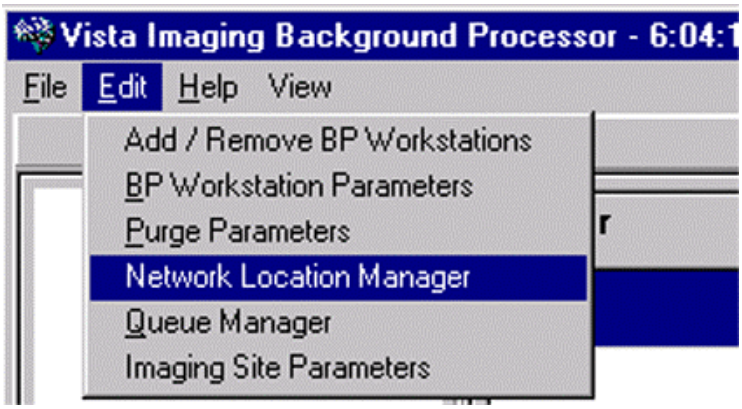
- GE/Marquette Muse security can be managed from this window.

3.1.8.3 When Not to Operate

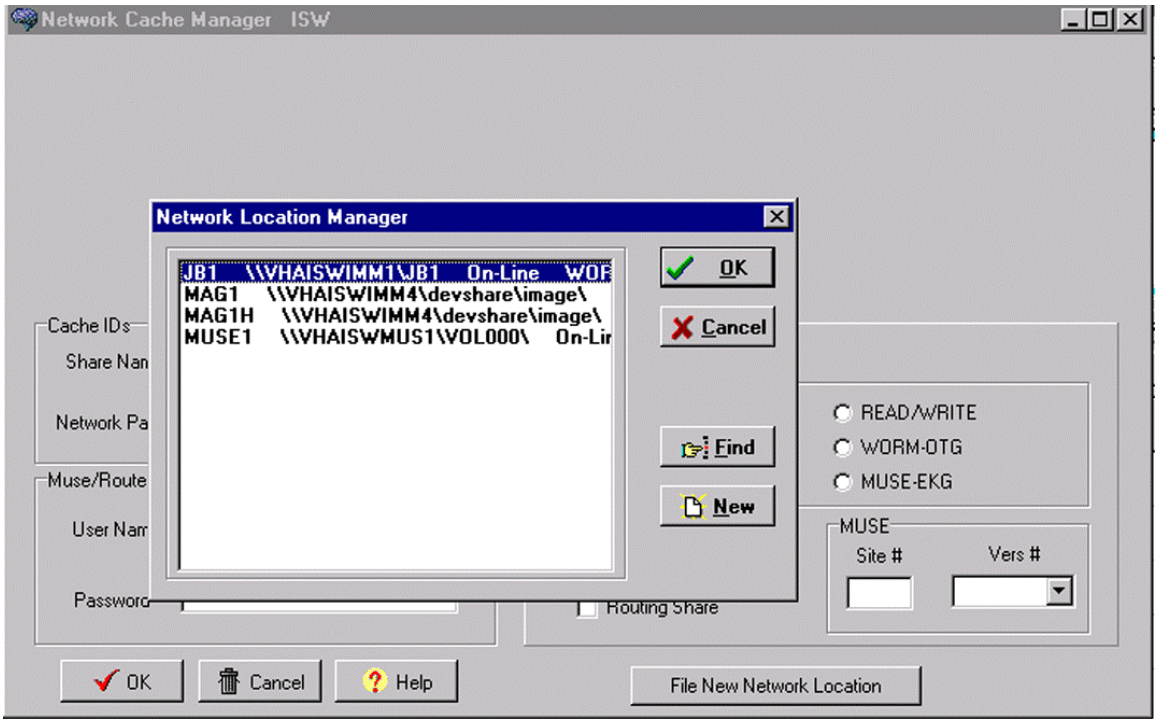
This option not available on the BP main window when the '*Queue processing*' option is active.

3.1.8.4 Operational Procedures

1. From the main Background Processor window, select the Network Location Manager option.

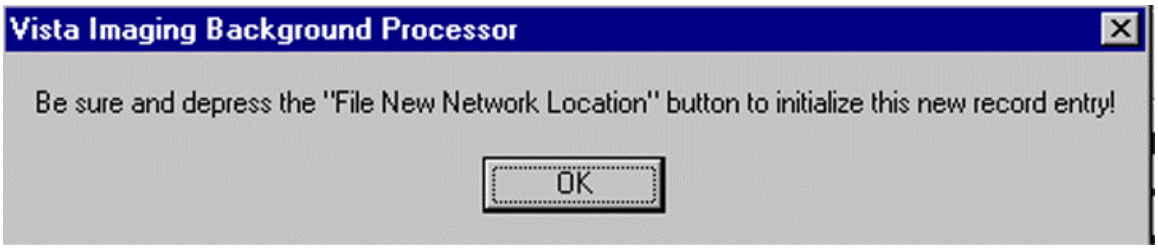


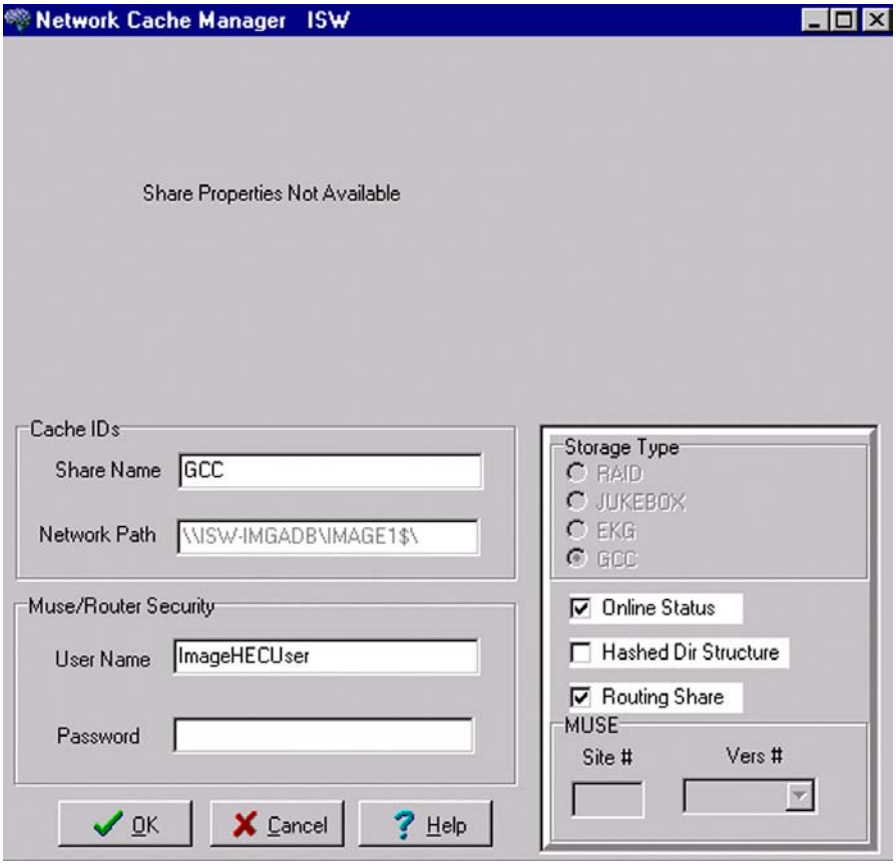
2. Click the "New" button to add a new share or highlight an existing share to configure it.



Creating a New Share: When creating a 'New' share location the operator will next see the following message regarding the required set of fields which must be established in order to create a unique share.	

If the "File New Network Location" button on the bottom right side of the window has not been clicked, the entry will not be filed. The following message box provides a warning:



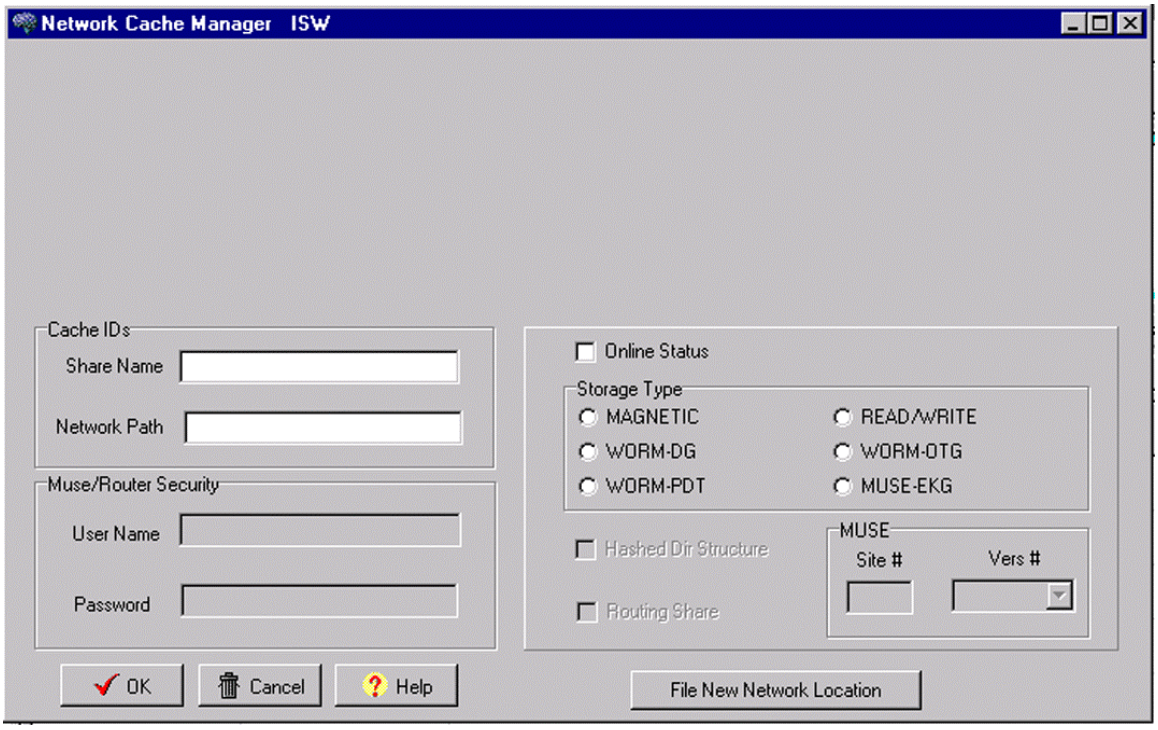


- The grayed fields of the Network Cache Manager window are read-only. The Online StatusDir Storage, and Routing Share fields each provide warning messages when checked or unchecked.

- The Share Name, Network Path, Online Status, and Storage Type are required fields and must be entered in order to save the new share entry (See the Imaging System Installation Guide for standard recommended naming conventions for both Share Name and Network Path).

- The Muse field set will only be enabled for Muse-EKG *Storage Types* and the Muse/Router Security fields will only be enabled for their coinciding *Storage Type*s.

- It is important to set these entries correctly. Any changes must be made using **V***IST***A** menu options. If a share is no longer used, it may be retired by setting it "off line".



3.1.8.5 Share Name

Each share name is assigned a logical name. Magnetic storage entries begin with "MAG". For example, "MAG1H" would indicate a magnetic network location that uses a hashed directory structure. All optical entries should start with "WORM". This is the assigned name of the physical location where images is stored.

3.1.8.6 Network Path

This is the Universal Naming Convention (UNC) style share where Image files are stored. Note the following information:

- According to VA Naming Conventions, your resource domain will be VHAxxx where xxx is the site's 3-character assigned name (e.g.,VHAWIM is the resource domain name at Wilmington). Some sites use the VISN domain as their resource domain. Their resource domain will be VHAxx where xx is the VISN number to which the site belongs (i.e.,VHA05 is the domain Name for VISN5).

- Recommended Imaging file server name:

  VHA + 3-letter site name + IMM + 1 digit (sequential)

  i.e., VHAWASIMM1 or VHAWIMIMM1

Muse/Router Security

3.1.8.7 User Name

Enter a valid user name for this network location. The value of this field is a user name that will be used to establish a connection with the network location.

3.1.8.8 Password

Enter a valid password for this user at this network location. The value of this field is a password that will be used with the user name to establish a connection with this network location. Do not share this account password with any users. If the password is compromised for any reason, the site must change the password in the master NT domain user file.

3.1.8.9 OnLine Status

This device designation allows the **V***IST***A** Imaging System to continue functioning when individual storage devices go down. If a storage device is impaired in any way, the **V***IST***A** Imaging application will continue functioning if this checkbox is unchecked for the faulty device. Image files on an offline device are inaccessible by the **V***IST***A** Imaging Display application. Images will be accessed directly from the Jukebox and then copied to an online VMC device. The purge function does not evaluate files on an off-line device.

3.1.8.10 Storage Type

- ***RAID***. This is the normal RAID magnetic share used to provide fast access to image files that have been recently acquired or viewed.
- ***Jukebox***. This is the normal Jukebox share that refers to the OTG Optical Jukebox.
- ***EKG*** This is the device type that commonly is used to store Muse EKG data.
- ***GCC*** This is the default location for Health Eligibility Center(HEC) (and Generic Carbon Copy) files to be copied to.

3.1.8.11 Hashed Dir Structure

This checkbox is used to configure the storage structure on the share. If not checked, the files are placed and retrieved from the root directory of the share. If Hashed Dir Structure is checked, the files are placed and retrieved from a subdirectory of the share that is derived from the file name itself. The hashed directory structure creates subdirectories as descendent subdirectories from the share root beginning with the first two characters of the filename. Within that descendent subdirectory, a subdirectory of the next two characters of the filename, and, once more, a descendent subdirectory from that subdirectory using the next two digits of the filename. In this manner, the files are maintained in a 3-level deep subdirectory structure such that no directory will contain more than 100 unique filenames with their various extensions. For example, the file BA123456.TGA would be stored in the folder: \BA\12\34.

3.1.8.12 Routing Share

This checkbox option performs several functions:

- The share will be isolated or immune from BP Purge activity.
- The Autowrite location update function will not consider this share as a candidate for selecting the current write location. However, if the Auto write location option is disabled then this share can manually be selected as the current write location, using the Site Parameters window.

3.1.8.13 Muse-EKG

Image files that are on a Muse-EKG share are referenced from the Muse database and displayed on the clinical imaging workstation.

3.1.8.13.1 Site

If this is a MUSE EKG network location, this field contains the MUSE site number for this location. Typically, a site with a single MUSE server that holds EKGs for one site would use 1. If a MUSE server stores EKGs for more than one site, then each site would be assigned a MUSE site number by GE/Marquette.

3.1.8.13.2 Version

This field holds the MUSE version number for Muse-EKG network locations.

3.1.9 Queue Manager

3.1.9.1 Function

This option allows the **V*IST*A** Imaging System manager to evaluate, archive, purge, and re-queue failed queues. It also provides the option of moving the current queue reference for each of the active queue types either forward or backward.

3.1.9.2 When to Operate and Why

This option should be used whenever connectivity issues arise with any of the networked **V*IST*A** Imaging System components. The components include **V*IST*A** Magnetic Cache devices, Jukebox shares, OTG database, or the Background Processor workstation. In general when network outages occur, the JUKEBOX copy queue reference should be moved backward, and the JBTOHD reference should be moved forward. This will aid in recovering files that need archiving and circumvent populating the VMC with images that may no longer need to be there.

3.1.9.3 When Not to Operate

This option is not available on the BP main window when the '*Queue processing*' option is active.

3.1.9.4 Operational Procedures

See the Troubleshooting section of this manual for operational details.

3.1.10 Imaging Site Parameters

3.1.10.1 Function

This option provides system wide **V*IST*A** Imaging System site parameter configuration.

3.1.10.2 When to Operate and Why

This option should be used whenever there is a need to reconfigure any of the major components of the **V*IST*A** Imaging System.

3.1.10.3 When Not to Operate

This option not available on the BP main window when the '*Queue processing*' option is active.

3.1.10.4 Operational Procedures

See the chapter entitled "Imaging Site Parameters" in this manual for details.

3.1.11 Server Size

3.1.11.1 Function

This option graphically displays the **V*IST*A** Magnetic Cache (VMC) free space. If the Autowrite location update option is enabled, then the current write location will be updated when the Server Size option is activated.

3.1.11.2 When to Operate and Why

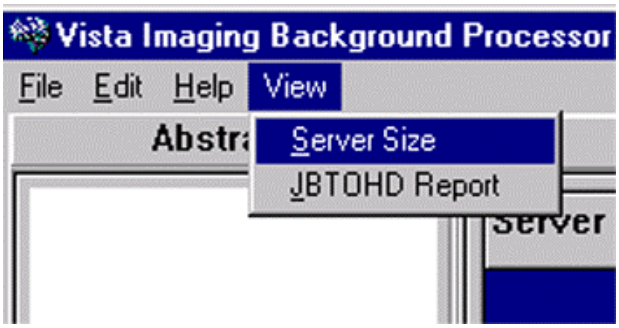
This option should be used to obtain a graphic view of the VMC or to reset the current write location.

3.1.11.3 When Not to Operate

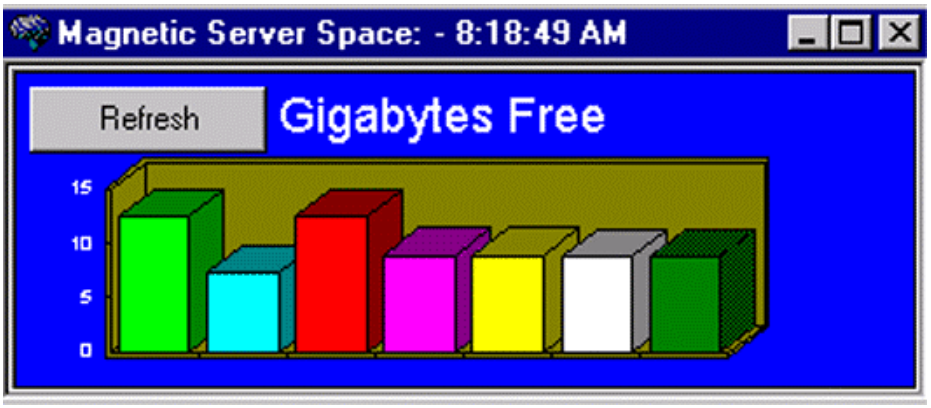
This option will not be able to provide information when the servers or network are down. The write location cannot be modified when **V*IST*A** is down.

3.1.11.4 Operational Procedures

Select the Server Size option from the View menu on the main BPWS window.

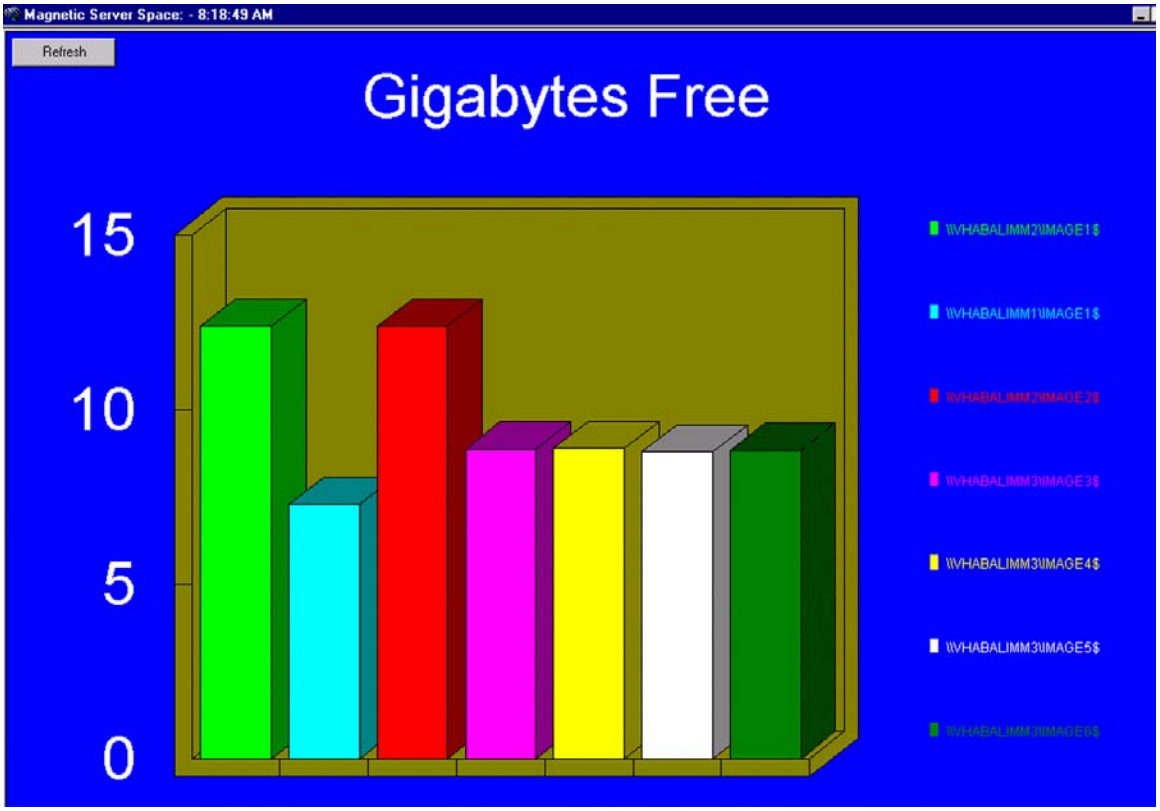


The standard view:



- Button clicking the '*Refresh*' button will start an update process that will reset the current write location if the 'AutoWrite Location Update' option is enabled.

- Notice the UNC share legend on the right of the full Server Size view below:



3.1.12 JBTOHD Report

3.1.12.1 Function

This option provides a view of the unprocessed JBTOHD queues. It enables the **V*IST*A** Imaging System manager to determine where to move the current JBTOHD reference to reprioritize access to images when a system problem has been experienced and a particular provider is finds continued slow access to images.

3.1.12.2 When to Operate and Why

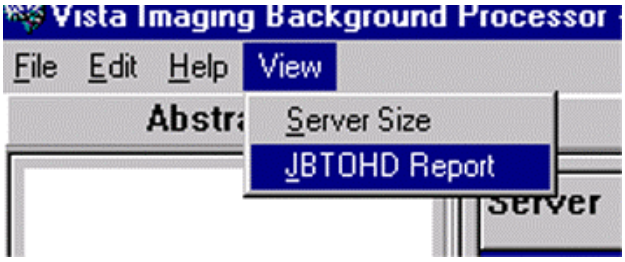
This option should be used when there is an emergency call to escalate the priority of images. This option will only help when there is a backlog of JBTOHD queues.

3.1.12.3 When Not to Operate

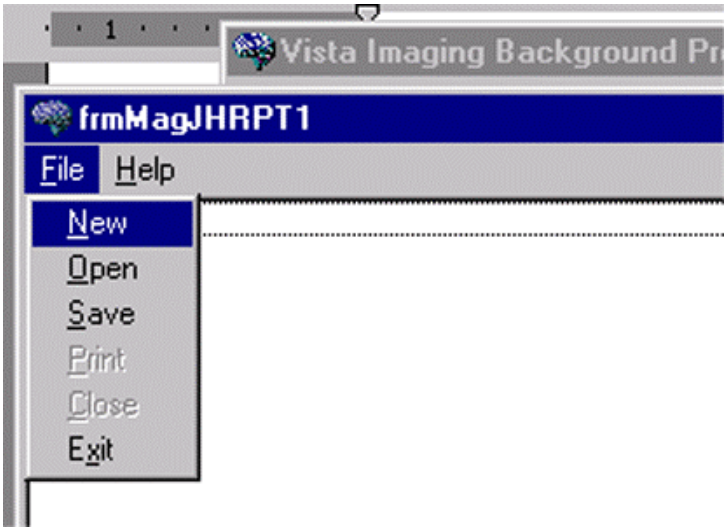
This option not available on the BP main window when the '*Queue processing*' option is active.

3.1.12.4 Operational Procedures

1. Start the '*JBTOHD Report*' option from the View menu on the main BP window.



2. Create a current '*JBTOHD Report*' using the 'New' option from the '*JBTOHD Report*' File menu.



Note: See the Troubleshooting section of this manual for further details on the interpretation of this report.

3.2 Error Messages

Error Message	Cause(s)/Solutions
Message box type error: EBrokerError: LA123456.TGA	RPC is not available. Or Application timeout. 1. Restart application.
Message box type error:	RPC is not available. Or Application timeout.

Error Message	Cause(s)/Solutions
EBrokerError: 123456	1. Restart application.
Message box type error: Broker Connection to server could not be established!	**V***IST***A** RPC Broker is not currently in a listening state. OR The application has timed out. 1. Close the application and restart. 2. Check with the **V***IST***A** system manager for the status of the Broker listener.
Message box type error: You must be assigned the "MAG SYSTEM" key to operate the Background Processor	The user does not have the MAG WINDOWS security key assigned. 1. Assign the MAG WINDOWS security key to this user.
Message box type error: This Workstation is not yet configured!	1. There is no entry for this workstation / Use the BP Workstation menu system: Edit| Add, Change, Delete BP workstation. 2. The Workstation has not been assigned any Queue types to process / Use the BP Workstation menu system: Edit||BP Workstation Parameters.
Event log message: Unable to copy to the current fileServer: Not enough storage is available to process this command.	Check the OTG Error log for errors. Run the DBCACHE/Reports function from the DEX directory.
Event log message: Unable to copy to the Jukebox: Not enough write cache available 70 The remote server is paused or is in the process of being started.	Check the OTG Disk Extender Uitltities for errors. From the Dex\Bin directory on the Jukebox server execute the following command: dbcache/report If errors appear on the report, perform the following command:

Error Message	Cause(s)/Solutions
	dbcache/fix all
Event log message: Invalid jukebox volume name: \\VHAISWJB1\IMAGE1\ DEX ***Followed by***: JBSleep \\VHAISWJB1\IMAGE1\ Jukebox is currently offline.	The Jukebox share cannot be accessed by the BP. The BP will continue processing when the Jukebox share comes back on-line. Check the Jukebox utilities for errors and operational status.
Event log message: Unable to copy to the Jukebox: Not enough write cache available	The jukebox cache flushing mechanism is not clearing cache adequately. 1. Stop the Background Processor. 2. Use Jukebox utilities to determine if there is adequate media, check for error conditions, or there is need to re-start the cache flushing utility. 3. Restart the BP when the cache is clear.
Event log message: Invalid jukebox volume name: \\VHAISWJB1\IMAGE1\ DEX	The jukebox share label is not consistent with the **V*IST*A** Jukebox file volume name. 1. Check the volume name in the site configuration (Edit|Site Imaging Site Parameters – Jukebox default) 2. Check the network properties of the Jukebox share validate that the label is 'DEX'.

3.3 Background Processor Logs

The log file, BackProc.log, will be archived in the application subdirectory and held for 20 instantiations of the purge and then deleted. The same is true of the BPError.log file.

Chapter 4 Purge Operations

4.1 Function

It is necessary to understand the function of the **V*IST*A** Magnetic Cache (VMC) in order to understand the function of the Background Processor Purge function. The VMC provides quick access to files newly acquired from the **V*IST*A** Imaging Capture application or imported through the DICOM gateway application. Files that are accessed from the Jukebox by the **V*IST*A** Imaging Display application are then copied to the VMC to provide quick access to this active patient's clinical images. Thus, storage space is constantly being used on the VMC. The Purge function frees space on the VMC by comparing the date of last access of individual files to the aging parameters defined by the **V*IST*A** Imaging System manager. Files are purged from the VMC only after their existence has been verified on the Jukebox.

4.2 When to Operate and Why

It is recommended that VMC free space be maintained between 10 and 25 percent of total VMC disk space. The exact number depends on the capacity of the VMC relative to the rate of image acquisition and access. A site should have several weeks of free space available at any given time. On the other hand, a site may want to keep 6 months of clinical images and several years of abstracts online to reduce the movement of images to and from the jukebox. Achieving this balance may require monitoring VMC capacity while fine-tuning the purge parameters.

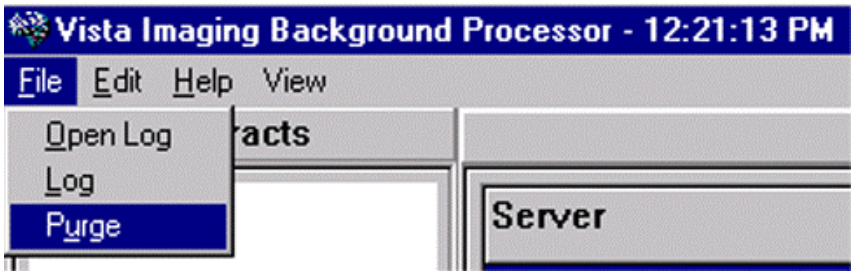
Generally, the purge should be started when the VMC reaches 90 percent capacity and the result of the purge should be 15-25 percent disk space free, depending on the site's dynamics. If the VMC maintains a large number of 'big' files then the 'keep' days for these files may need to be reduced to 30 or 45 in order to maintain optimal disk utilization. It is advised that the "% Server Reserve" value, which defaults to 5% be set higher, possibly 8%, so that if the cache reserves have reached that threshold there is enough response time to run the purge and keep the BP process active. The BP no longer manages the network write locations when there is less than 5% free space. The % Server Reserve parameter is configured on the Site Parameter form.

4.3 When Not to Operate

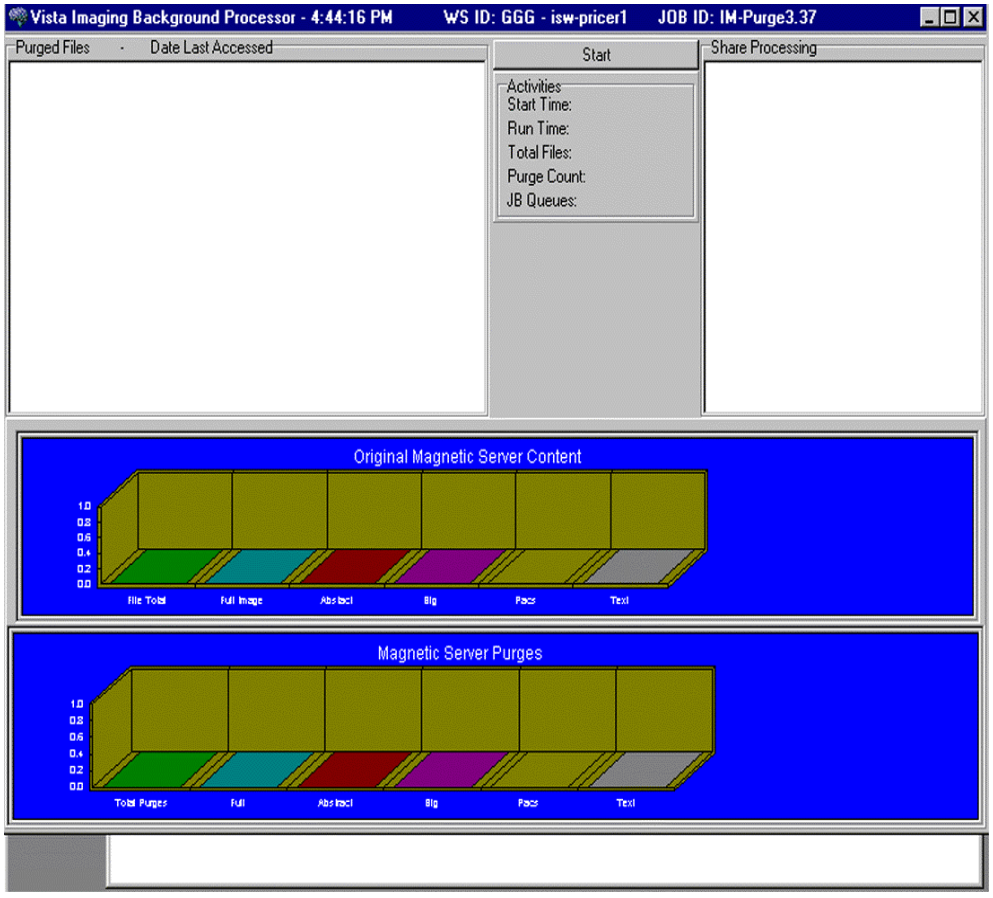
It is imperative ***not to operate*** the purge function when there is any connectivity impairment between the background processor and the jukebox share. OTG Disk Extender maintenance (V. 3.2) should not be scheduled during the time the purge is running. VMC files that cannot be verified on the Jukebox will be queued to the JUKEBOX copy queue unnecessarily and degrade the **V*IST*A** Imaging System performance.

4.4 Operational Procedures

1. Select the purge option from the main Background Processor window through the File menu:



2. Start the Purge by clicking the '*Start*' button.



4.5 Purge Window Description

- The title bar includes the current time, the workstation (WS) network computer name, and, on DSM host systems, the VMS job name.

- The display box in the upper left quadrant shows the files that were purged and the date each was last accessed by a user application. All listed items are captured in the current Purge.log file. The display is cleared after every 50 items to conserve system memory.

- The 'Start' button initiates the purge.

- The 'Activities' display (immediately below the “Start” button) provides the time of execution and running totals: the total VMC files evaluated, the number purged, and the number that were queued to be copied to the Jukebox (JB) because their existence could not be confirmed on the JB.

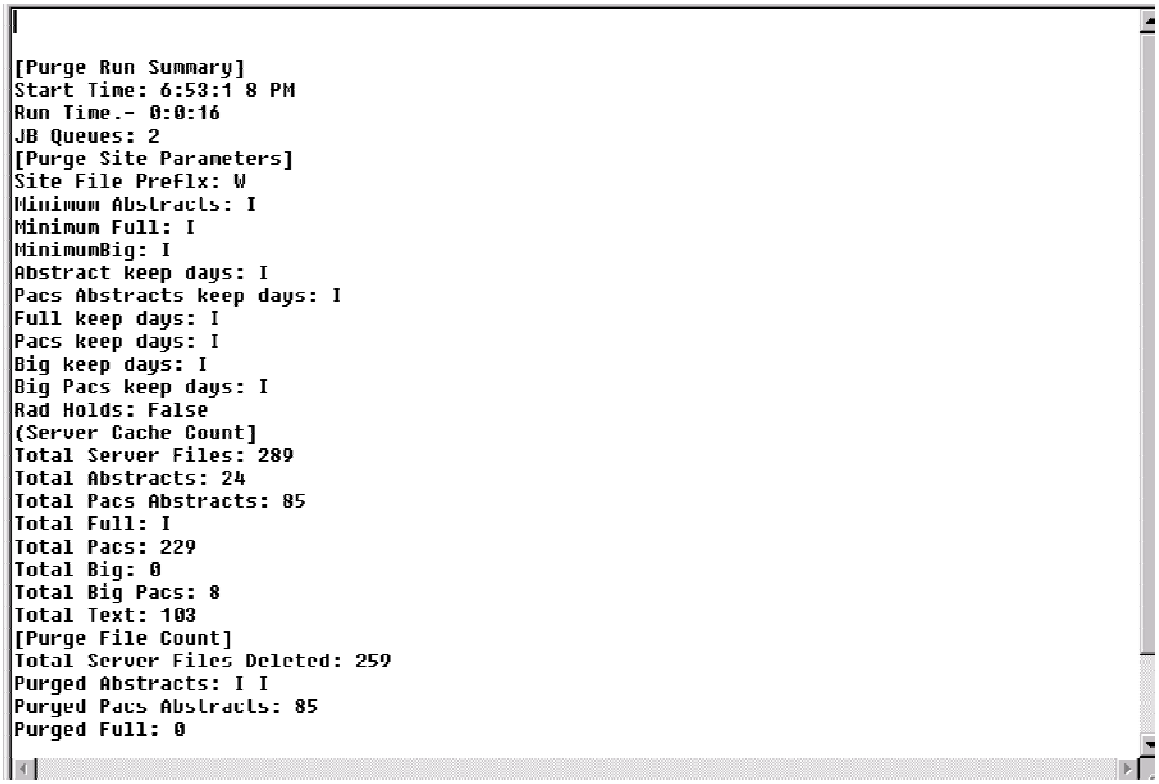
- The 'Share Processing' display lists each on-line, non-routed, magnetic share contained in the Network location file (#2005.2). These shares will be processed during the purge. After processing is completed, each share name will appear with a ‘Purged’ status appended to its name.

- The two bar graphs reflect the runtime categorization of image files evaluated and purged as the purge process progresses. Note that the units of the vertical axis (showing total number of files in real time) will increase during the processing period. The vertical units of the two graphs will differ from each other because one shows total files, while the other indicates purged files.

4.6 Purge Report

In the [Purge Run Summary], the purge report includes the following runtime data:

- Start Time
- Run Time
- Number of Jukebox queues



Note: If the Jukebox share is unavailable, the files that are purge candidates will be queued for JB copy because their existence cannot be verified on a jukebox.

In the [Purge Site Parameter] section, the report shows the purge related site parameters. The minimum values are used to quickly sort through files that are out of the date range for purging. This is a performance related technique. Files that are not purge candidates will not require a broker call to further gather file attributes nor will they require jukebox verification. The number of days each file type is kept is part of the candidate analysis. Whether a Radiology hold exists is then processed, if the site parameters indicate this.

In the [Server Cache Count] and [Purge File Count] sections, the report includes the number of each file type found and the number of each file type purged from the VMC respectively.

4.7 Purge Log Files

The log file, Purge.log, will be archived in the application subdirectory. Purge.log and PurgeError.log files are kept from the most recent five purges.

Chapter 5 Verifier Operations

5.1 Function

The verifier has many functions. It validates and corrects **V*IST*A** Magnetic Cache and Jukebox file references stored in the **V*IST*A** hospital system. It creates TGA and ABS files when these files are missing and an appropriate source file exists. It deletes network copies of images of file size zero. It copies all derivative extensions to a single jukebox share.

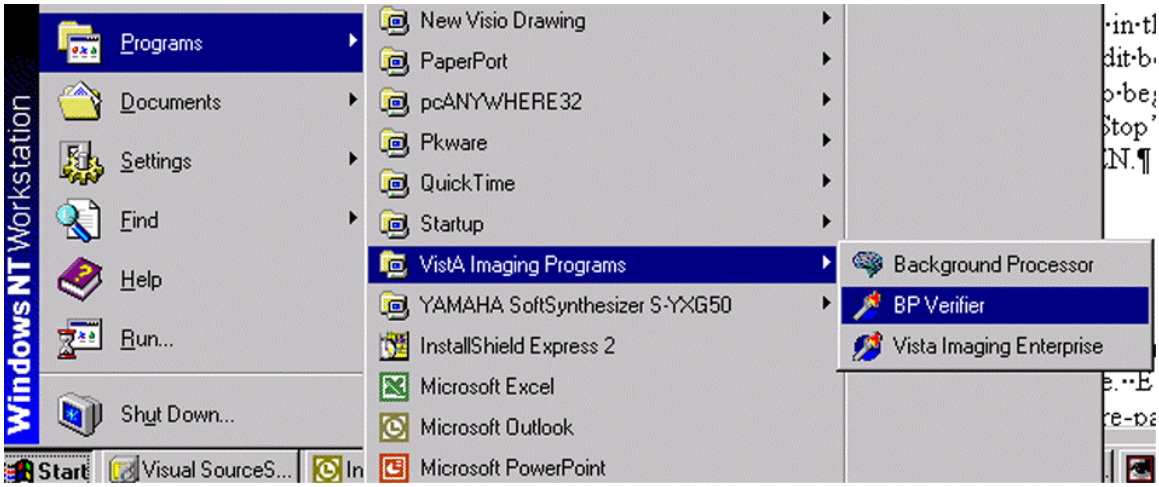
5.2 When to Operate and Why

This option should be run when network outages have delayed file transmissions to the extent that file references and file copies within the **V*IST*A** Imaging System might have become unreliable. A large volume of failed Jukebox queues is indicative of a range of image file IENs that should be scanned by the verifier to correct any anomalies. A large volume of JUKEBOX queues generated when running the BP Purge Option is the classic indicator of problems that can be corrected by the Verifier. The Queue Manager should be used to determine the IEN number range of these queues.

5.3 When Not to Operate

DO NOT operate this option in the "ALL" mode or over a large IEN range during peak clinical Image usage. The impact on the Jukebox is significant and will reduce the **V*IST*A** Imaging System response time.

5.4 Operational Procedures



Within the "Imaging File Database Verification" section of the BP Verifier window, the operator must indicate the extent of the Verification process before clicking on the "*Start*" button. The '*Range*' or '*All*' selections distinguish between a numeric range of Internal Entry Numbers (IENs) within the image file and all entries in the image file. When 'Range' is selected, the Verifier will start at the first entry after the "Start" IEN value and it will stop

after processing the "Stop" IEN value. The "Start" value must be less than the "Stop" value; both must be integers.

Note: This is applicable to Disk Extender versions prior to 4.2 only.

It is imperative, when verifying a large range of IENs, to determine the length of time required to complete processing. To do this, after an hour or more of operation, divide the number of "Total Files" on the "Activities" summary by the run time in minutes. This will give you the number of files processed per minute. By dividing the total number of files to process by this number, you will get the total number of minutes required.

The verification process is most optimally performed overnight when system activity is reduced. If the verifier must be run over large IEN ranges, it should only be done at times of reduced system use. It is also imperative that the scheduled OTG Disk Extender overnight maintenance be temporarily disabled if the verifier is expected to run through the night. This will allow the Verifier to accurately check the Jukebox images. See the instructions for "*Scheduling and Rescheduling OTG Maintenance*" in the appendix of this manual.

5.5 Verifier Window Description

The following is a detailed description of the Read-only BP Verifier information displayed on this window:

5.5.1 V*IST*A Cache Shares

This list shows Network Location file entries and their attributes; each is related to **V***IST***A** Magnetic Cache share. Each entry displayed must be online, magnetic and non-routing. The attributes are separated by the "^" character and are defined in order, as follows:

- Internal Entry Number of the Network Location file entry
- UNC Computer/Share Name
- Yes/No indicator of Hash Status: Y=share is hierarchical, hashed; No entry=Image files stored in the root directory of the share
- Connectivity Status: the fourth piece displays Offline if the Verifier cannot access the share

5.5.2 Imaging File Database Verification

See description under User Operation above.

5.5.2.1 Start button

This activates the Verification process.

5.5.2.2 Activities

See report and log file description for the details of these fields.

5.5.2.3 Jukebox Shares

This list represents the online Jukebox shares. Each line displays…

- Network Location file internal entry number (IEN)
- Path of the share
- "Y" if the share is hashed, no entry if it is not hashed
- "OFFLINE" is appended to the share item, if the share is not currently accessible from the current physical network, within the rights and privileges of the BPWS.

5.5.2.4 Verification Process Grid

Each entry on this grid represents an attempt to correct a **V*IST*A** Image file referential integrity issue. The columns are explained below:

5.5.2.4.1 Activity

"***Scan***" represents an abnormal finding and displays the current state of the image file references. "***Cert***" represents a description of the finding and the result of attempts to correct.

Activity	Description	Verifier Action Taken
Cert: No FULL JB Files	No full clinical image was found on the **V***IST***A** Imaging referenced Jukebox share.	The Verifier copies the full clinical image files from an alternate **V***IST***A** Imaging network source and updates the references if available.
Cert: No TXT JB Files	No associated, full clinical image Text file was found at the **V***IST***A** Imaging referenced Jukebox share.	The Verifier copies the .txt file from an alternate **V***IST***A** Imaging network source (if available) and updates references.
Cert: No ABS JB Files	No derivative abstract file was found on the **V***IST***A** Imaging referenced Jukebox share.	The Verifier copies the .abs file from an alternate **V***IST***A** Imaging network source (if available) and updates references.
Cert: No BIG JB Files	No full resolution "BIG" file was found on the **V***IST***A** Imaging referenced Jukebox share.	The Verifier copies the .big image file from an alternate **V***IST***A** Imaging network source if available and updates references.
Cert: No BIG TXT JB Files	No associated "BIG" text file was found on the **V***IST***A** Imaging referenced Jukebox share.	The Verifier copies the .big text file from an alternate **V***IST***A** Imaging network source if available and updates references.
Cert: No Full VC Files	No full clinical image was found on the **V***IST***A** Imaging referenced VMC share.	The Verifier copies the full clinical image file from an alternate **V***IST***A** Imaging network source if available and updates references.

Activity	Description	Verifier Action Taken
Scan (1 of 2)	Either no **V*IST*A** Imaging network references were found for this image… OR	The "*No Ref Count*" on the "*Activity*" summary is incremented.
Scan (2 of 2)	One of the **V*IST*A** Imaging system derivative files ("BIG", "TXT", Full Clinical Image on the VMC) or events (BigToTGA or BigToABS) failed to be handled during verification.	The Verifier updates the "ScanError.log" file and **V*IST*A** image file references are updated.
BigToTGA	No TGA full clinical image file was found on the **V*IST*A** Imaging System. A "BIG" file was available to create a TGA derivative file.	The Verifier creates a TGA derivative file at the current VMC write location, copies it to the current Jukebox location, and updates the **V*IST*A** file references.
BigToAbs	No ABS image file was found on the **V*IST*A** Imaging System. A "BIG" or a "TGA" file was available to create an ABS derivative.	The Verifier creates an ABS derivative at the current VMC write location, copies it to the current Jukebox location, and updates the **V*IST*A** file references.

5.5.2.4.2 Time

This represents the date and time the finding occurred.

5.5.2.4.3 IEN

This represents the Image File **i**nternal **e**ntry **n**umber of the Image.

5.5.2.4.4 File

This represents the Full image file name and extension.

5.5.2.4.5 JBFull

This represents the IEN reference in the **V*IST*A** Image File (#2005) entry to the Full Jukebox share network location file (as seen in the Jukebox shares window) and the "ABS" extensions of the same filename found there.

5.5.2.4.6 JBBig

This represents the IEN reference in the **V*IST*A** Image File (#2005) entry to the Big Jukebox share network location file (as seen in the Jukebox shares window) and the extensions of the same filename found there.

5.5.2.4.7 VCFull

This represents the IEN reference in the **V*IST*A** Image File (#2005) entry to the Full VMC share network location file (as seen in the Image Cache shares window) and the extensions of the same filename found there.

5.5.2.4.8 VCAbstract

This represents the IEN reference in the **V*IST*A** Image File (#2005) entry to the Abstract VMC share network location file (as seen in the Image Cache shares window) and the extensions of the same filename found there.

5.5.2.4.9 VCBig

This represents the IEN reference in the **V*IST*A** Image File (#2005) entry to the Big VMC share network location file (as seen in the Image Cache shares window) and the "BIG" extensions of the same filename found there.

5.5.2.4.10 CWL

The Current Write Location (aka Network write location) that determines the location where files will be created if TGA or ABS recovery methods are implemented.

5.5.2.4.11 JBPath1,JBPath2,JBPath3

This represents the IEN references in the **V*IST*A** Image File (#2005) Jukebox share network location file (as seen in the Image Cache shares window) and the extensions of the same filename found in them.

5.6 Processing Sequence

- When the Start button is clicked, the application retrieves a list of **V*IST*A** Magnetic Cache (VMC) shares and Jukebox shares.

- The Verifier compiles an internal list comprised of the existing VMC and Jukebox network location file references for FULL, ABSTRACT, and BIG derivative files. The list also includes the file name and extension of the file that is designated as the FULL file.

- The Verifier then checks each of these referenced locations and each of the jukebox shares for instances of: .abs, .big, .txt files, and the full file extension.

- When multiple jukebox shares are online and copies of derivative image files are distributed across multiple jukebox shares, then the entire set is copied to the latest Jukebox share and the **V***IST***A** file references are updated.

- If derivative image files are found in the VMC that are not on any jukebox share, then those derivative image files are copied to the jukebox and the **V***IST***A** file references are updated.

- TXT derivatives found on the network are copied to all VMC Full, ABS, and BIG locations as well as the jukebox location. This activity only occurs when the full file type has one of the following extensions: TGA, JPG, or TIF.

- Each file is checked to see if it has a file size greater than zero. If the file size equals zero, then the VMC files of zero size are deleted, and the image VMC references are updated. Files of size zero found on the Jukebox shares are **NOT** deleted at this time because these servers may report file size inexactly.

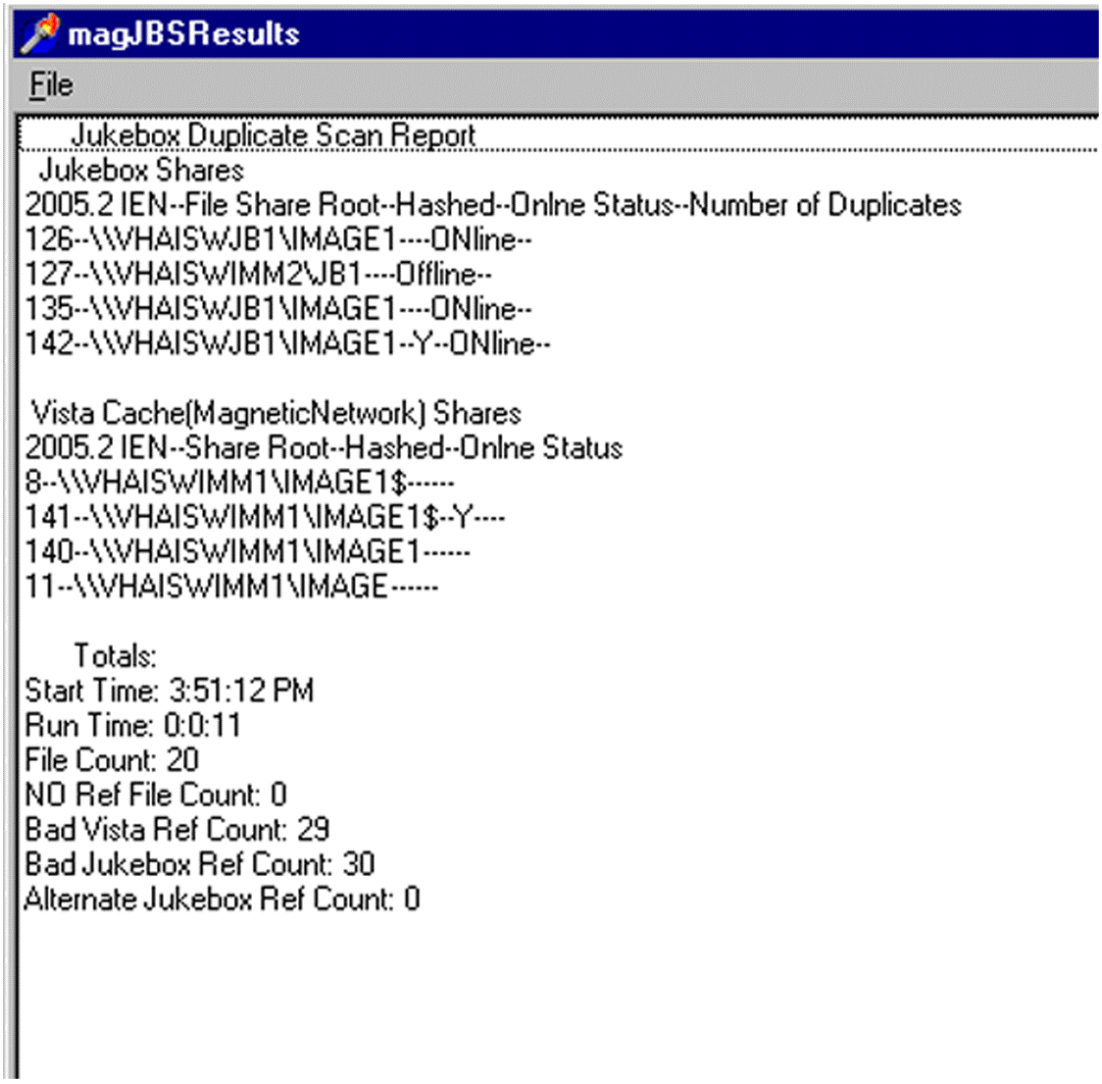
- If no TGA file exists at the evaluated **V***IST***A** network locations, and a BIG file does exists, then a TGA file is created using the referenced BIG file as the source. Likewise if no ABS derivative file exists at the evaluated locations, but a TGA file exists, then an ABS derivative file is created using the TGA file as the source.

5.7 Verifier Messages

Error Message	Cause(s)/Solutions
Event Log message: Jukebox copy of: \\VHAISWJB1\IMAGE1\LA123456.TGA is of size zero.	Network traffic caused the original copy process to time out or the original source file was corrupt. 1. The verifier will overwrite the size zero file if a VMC copy is at the VMC referenced location. 2. If the file exists on the online VMC, the purge process will repoint the VMC reference and queue a Jukebox copy. 3. If the problem persists, seek recovery methods from the original modality source.

Error Message	Cause(s)/Solutions
Message Response Box: lbCacheShare.items.Count < 1: MAGQ SHARES	There are no online, non-router VMC shares. Check the Network Location Management utility to resolve. Set some VMC shares on-line.
Message Response Box: CC:createcontext("MAG WINDOWS") could not be established!	The user does not have the MAG WINDOWS security key assigned. Assign the MAG WINDOWS security key to this user.
Message Response Box: Broker Connection to server could not be established!	**V*IST*A** RPC Broker is not currently in a listening state OR the application has timed out. 1. Close the application and restart. 2. Check with the **V*IST*A** system manager for the status of the Broker listener.
Event Log Message: Source File does not exist: LA123456.TGA	The **V*IST*A** Imaging file reference was not updated. The verifier will update. NO action is necessary.

5.8 Verifier Report



The first two sections of the report contain the lists of site VMC and Jukebox Shares with their Network Location File Internal Entry Numbers (IEN), Pathname, Hashing Boolean and online status.

The third section of the report includes the Start Time and Stop Time. Next, the number of files evaluated is listed for various categories:

- Number of files with No VMC or Jukebox location references.
- Number of bad references, which are updated by the process, is listed.
- The number of files found on multiple Jukebox share locations is listed (These are corrected by the Verifier. They are aggregated on the most current common share).

5.9 Verifier Log Files

The log file, Certed.log, will be archived in the application subdirectory. Five copies of the Certed.log file will be held and then deleted the next time the Verifier is run. The same is true of the ScanError.log file.

Chapter 6 Imaging Site Parameters

6.1 Function

The Imaging Site Parameters option of the Background Processor allows system managers to configure the **V*IST*A** Imaging System.

6.2 When to Operate and Why

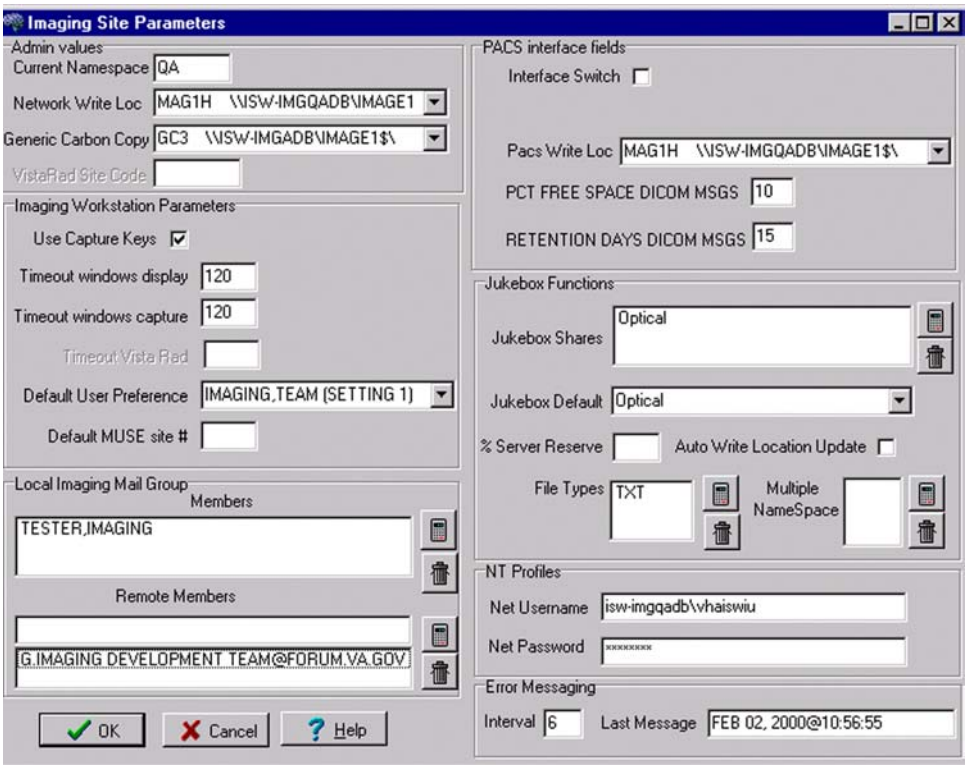
This option should be used to configure the system-wide Imaging site parameters, including image file attributes, **V*IST*A** Magnetic Cache locations, display and capture workstations, DICOM gateways (PACS), Jukebox, network profiles, error messaging, and notification mail groups.

6.3 When Not to Operate

This option is not available on the BP main window when the '*Queue processing*' option is active. However, a second copy of the Background processor can be started on the same workstation to use the configuration options.

6.4 Operational Procedures

Open the Background Processor application and click on the *Edit| Imaging Site Parameters* menu item.



6.5 Parameters

Each section below refers to a panel on the Imaging Site Parameters window. The name of each panel is shown on the top boundary of the panel. For example, the Admin Values panel is in the top left hand corner of the Imaging Site Parameters window. Each panel contains a number of controls that can be used to set the site parameter values. All of the imaging site parameters are described below.

6.5.1 General Instructions for Adding or Deleting Items from a List


This button starts an 'Add' action. Click this button before selecting an entry to be added to a list.


This button starts a 'Delete' action. Select an entry to delete prior to selecting an entry to be deleted from a list.

6.5.2 Admin Values Panel

6.5.2.1 Current Namespace

This field is not site configurable. The current namespace is the first two characters of the 8-character name given to image files captured at this site. Each VHA facility has its own unique 2-character namespace. The **V*IST*A** Imaging development and support teams maintain a central database of site information, including assigned namespaces. This is necessary to ensure that image file names across VHA are unique.

6.5.2.2 Network Write Loc

- This field contains the Universal Naming Convention (UNC) file share name of the image storage unit where image files are or will be written when captured or retrieved from the Jukebox.
- All images captured on clinical workstations will be saved in this location. This location will change over time depending on available space on the various magnetic cache locations. This location represents a single share in the **V*IST*A** Magnetic Cache.
- If the Autowrite Location update option is disabled, then the system manager can manually select a new location from the drop down list.
- The clinical capture software always checks this node before writing a DOS Image file to disk.
- This field is also known as the Current Write Location.

Note: Current Write Location and Network Write Location are used for the same parameter.

6.5.2.3 Generic Carbon Copy

- This field contains the Universal Naming Convention (UNC) file share name of the remote storage unit where image files copied to by default when Health Eligibility Center (HEC) / GCC copies are invoked.
- Images captured on clinical workstations will be copied to this location.
- This location is selected from the GCC type network locations set up in the Network location file.

6.5.3 VistaRad Site Code

- Designated for Future use.
- The default settings should NOT be changed.

6.5.4 Imaging Workstation Parameters

6.5.4.1 Use Capture Keys

- This field controls whether the Image capture security keys will be used to determine whether particular users may capture images to a particular package. If this item is set to true, then the appropriate keys must be given to users for the appropriate Image capture functions. The use of capture keys is recommended, so this box should be checked.
- If this box is checked, 'Capture' functionality and the associated procedure look up will not be allowed from the capture window if the user does not have the proper security key allocated.
- If this box is checked, the Medicine procedure selection window will only display the types of procedures for which the user has keys assigned.

6.5.4.2 Timeout Windows Display

- Enter the number of Minutes (between 6 and 600) before the **V*IST*A** Imaging Display Application will close due to inactivity.
- If no activity occurs for this number of minutes, the user will be prompted with a dialog window and given 30 seconds to 'Click' on the 'Stay Connected' button or the application will be closed.

6.5.4.3 Timeout Windows Capture

- Enter the number of Minutes (between 6 and 600) before the **V*IST*A** Imaging Capture Application will close due to inactivity.

- If no activity occurs for this number of minutes, the user will be prompted with a dialog window and given 30 seconds to 'Click' on the 'Stay Connected' button or the application will be closed.

- The ‘Capture’ timeout period will generally be longer than the ‘Display’ timeout because clinical procedures can take hours. Critical images can be missed in the operating room or endoscopy lab because of a short timeout period.

6.5.4.4 Timeout V*IST*A Rad

- Designated for future use.

- Do NOT change default values.

6.5.4.5 Default User Preference

- This field contains the user preference setting for first time users of the **V***IST***A** Imaging System.

- This field points to the Imaging User Preference file (2005.18). If this field is empty, the default user preferences are created by the **V***IST***A** Imaging routines.

6.5.4.6 Default Muse Site

Each GE/Marquette MUSE installation can have multiple site numbers. Enter the default site to which the **V***IST***A** Imaging Display application will connect. Site numbers are usually 1, 2, 3 ... etc. If this field is empty, the application will default to 1.

6.5.5 Local Imaging Mail Group

6.5.5.1 Members and Remote Members

- This group is initialized during the install process.

- The installer is automatically added as a local member.

- The G.IMAGING DEVELOPMENT TEAM@FORUM.VA.GOV is added as a required remote recipient to comply with the Food and Drug Administration requirements.

- It is recommended that the local **V***IST***A** Imaging ADPAC be added as a member.

- It is recommended that a local text pager recipient be added as a remote member. The pager service needs to provide email pager response. The standard email addressing format is supported by this system: “name@mail_domain”.

- Only individuals with the MAG SYSTEM security key will be displayed in the lookup dialogue for the local mail group.

6.5.6 PACS Interface Fields

These items refer to any DICOM systems that are interfaced to the **V*IST*A** Imaging System. These may be commercial PACS systems or DICOM modalities.

6.5.6.1 Interface Switch

If there is no DICOM gateway, this box should be unchecked.

6.5.6.2 Pacs Write Loc

- Select the **V*IST*A** Magnetic Cache (VMC) share where all images transmitted by the DICOM gateways are to be written. This location is similar to the Network Write Location described above, except it is used for images captured by a DICOM gateway.
- If the Autowrite Location update option is disabled, then the system manager can manually select a new location from the drop down list.
- If the Autowrite Location update option is disabled, then it is recommended that this location be set to a different location than the Network Write Location.

6.5.6.3 PCT Free Space DICOM Msgs

- Enter the minimum percentage (0 to 100) of free space for a DICOM gateway.
- The value of this field is the minimum percentage of free space required for DICOM gateway message processing.
- The automatic message delete function on the text gateway is triggered when this threshold is reached.
- 25% is the recommended entry.

6.5.6.4 Retention Days DICOM Msgs

- Enter the number of days (between 0 and 99999) that DICOM text messages are to be retained.
- The subroutine that purges old DICOM messages will only remove messages that are older than this number of days.
- 30 days is the recommended entry.

6.5.7 Jukebox Functions

6.5.7.1 Jukebox Shares

- This list box contains references to the WORM-OTG type shares in the Network Location file.

- All Jukebox shares should be added to this list in order for them to be referenced by the Jukebox default.

6.5.7.2 Jukebox Default

- If you have more than 1 jukebox, you will need to designate the active jukebox using this control. Use the pull down list to select the active jukebox network location.

- This field will designate the current Jukebox share write location where new image files will be placed.

6.5.7.3 Percent Server Reserve

- Enter an integer between 5 and 35.

- The system will default to 5 if this value is outside the normal range.

- This parameter specifies the threshold where the autowrite location update function will be deactivated and CRITICAL LOW MESSAGEs will be sent out to the previously specified mail group.

6.5.7.4 Autowrite Location Update

- This field enables or disables the background processor function that evaluates the space available on each of the online magnetic shares and assigns the network write location to the share with the greatest space available. This function controls both the PACS Write Location and the Network Write Location.

- The messaging functionality to alert system managers that the storage space has become critically low (Critical Low Message) is dependent on this activity.

- Network and PACS Write Locations must be manually changed if the autowrite location update activity is disabled.

- It is recommended that this parameter be temporarily unchecked when isolating online magnetic shares for purging.

6.5.7.5 File Types

- These entries are used to specify image file derivatives to migrate with the FULL, BIG, and ABSTACT files when JUKEBOX and JBTOHD queue entries are processed. Any file of a type specified will follow its associated FULL or BIG file when copies are made between jukebox and magnetic cache locations.

- The default entry: “TXT” included with the **V***IST***A** Imaging System installation. This entry should NOT be removed or else the TXT files will not migrate between jukebox and magnetic cache.

- Do not enter TGA, ABS or BIG to this list as they are already processed as a default by the queue processor if they exist in the derivative file set.

- The intent of this field is to allow sites that have specific other derivatives such as overlays or attachments to be managed by the **V*IST*A** Imaging System.

6.5.7.6 Multiple Namespace

- This feature supports the use of multiple local image file namespaces.

- This feature is necessary for sites that have more than a million image entries. This requirement will go away in the future as the **V*IST*A** Imaging System moves to long image file names.

- The **V*IST*A** Imaging purge function will purge files that are **NOT** prefixed with the current namespace or a namespace that is a member of this multiple.

- Contact **V*IST*A** Support when your site has collected 999,500 image files.

- NT Profiles

6.5.7.7 Net Username

- This entry must be 3-30 characters in length.

- This entry contains the master user account name that is used by the **V*IST*A** Imaging application.

- Do not share this account name with any users. If the password is compromised for any reason, the site must change the password in the master NT domain user file.

- See the Installation Guide Section 2.2.3 for more details.

6.5.7.8 Net Password

- This entry is the network password (between 3 and 30 characters in length) for the NET USERNAME entity.

- The password is hidden on this Site parameters form and encrypted in the database.

- Do not share this account password with any users. If the password is compromised for any reason, the site must change the password in the master NT domain user file.

- See the Installation Guide section 2.2.3 for more details.

6.5.8 Error Messaging

6.5.8.1 Critical Low Message Interval

- Enter an integer between 1 and 96.

- This value represents the hours between triggered error message transmissions. The Default value set during the package install is 6.

- The Critical Low Message is transmitted via Email to the members of the Local and remote **V***IST***A** Imaging Mail group.

- These messages represent an attempt by the system to alert support staff that the ability of the system to store images has been compromised. The messages will continue until there is sufficient server space to maintain the specified minimum reserve or until the Auto Write Location Update feature is disabled.

- Be sure to add the local Image support staff person to the local MAG SERVER mail group and at least one pager number in the MEMBERS REMOTE multiple.

6.5.8.2 Date/Time Of Last Critical Low Message

- This is a Read Only field.
- This date/time field is automatically set each time a critical message is sent.
- This parameter is used in combination with the CRITICAL LOW MESSAGE INTERVAL to determine if it is appropriate to send a new message when the **V*IST*A** magnetic cache space remains below the PERCENT SERVER RESERVE value.
- This field should not be edited in any way because it is updated automatically by the **V*IST*A** Imaging messaging system.

Chapter 7 Imaging Messaging

7.1 Introduction

The **V*IST*A** Imaging application provides a reporting mechanism that is sensitive to updates, software utilization, and error conditions. The mail recipients for this process are locally maintained mail group members, normally key IRM support staff, radiology managers, and/or ADPACS. The **V*IST*A** Imaging development and support team are essential recipients of this information.

7.2 Mailman Messaging

- The MAG SERVER mail group receives monthly local configuration messages that are designed to provide information for the benefit of the **V*IST*A** Imaging support team and to provide a method of automatic documentation of medical device usage necessary to fulfill FDA requirements. The subject of these messages has the following format: Image Site Usage: <Site Domain Name>.

  Additionally, the mail group is a recipient of critical operations messages, when Imaging System's **V*IST*A** magnetic cache has low disk space reserves.

- The "G.IMAGING DEVELOPMENT TEAM@FORUM.VA.GOV" remote member of that mail group is required to facilitate this support.

- It is possible to receive text page messages through this facility by adding the text pager email address as a recipient. This can be accomplished by adding the <email name @domain> to the remote member list of the Local Imaging Mail group, found on the Imaging Site Parameters window option. It may be necessary to have the domain of the recipient defined in the local site's Domain file (#4.2). When attempting to add the recipient, you will be notified immediately if the domain is not defined. See the site manager for the remedy.

7.3 Example: Site Usage message

Subj: Image Site Usage: WASHINGTON.VA.GOV
15 Sep 2000 23:02:06 -0500 (EST) 37 lines
From: <SPENCER.ANNA@WASHINGTON.VA.GOV> In 'IN' basket.

SITE: WASHINGTON.VA.GOV
DATE: SEP 15, 2000@23:00:06 EST
DOMAIN: WASHINGTON VAMC
2005 ENTRIES: 2041133
2006.81 ENTRIES: 1102
WS DIS VERS: 2.5.11.6^1
WS DIS VERS: 2.5.11.7^2

WS DIS VERS: 2.5.11.8^1
WS CAP VERS: 2.2.0.0^13
WS CAP VERS: 2.5.11.4^426
WS CAP VERS: 2.5.11.5^3
WS CAP VERS: 2.5.11.7^2
WS CAP VERS: 2.5.11.8^1
VistaRad Version: 3.0T10^JUL 06, 2000
DICOM Error Log:1596
DICOM FAILED IMAGES:3
Queue File count: 609
Unprocessed Queues: 480
30 DAY Image Workstation Sessions: 7328
30 DAY Image Workstation Patients: 11746
30 DAY Image Workstation Images: 68976
30 DAY Image Workstation Captures: 5901
BP VERS NUM DATE: 2.5.11.4^Win NT.4.0.1381^1^6/1/00
V*IST*A Image Version/Build: 2.5T11^D
DICOM Gateway Version: 2.5T;DICOM2.5T;;6-October-1999^2

7.4 Site Usage Message Content

- The message sender provides the name of the last installer of the **V*IST*A** Imaging KIDS package. The DUZ is retained in the tasked process that generates this monthly reporting mechanism.

- The 2005 ENTRIES value provides a gross estimate of imaging activity at each site. The value does not take into account that a significant number of entries are actually group records that can account for 2 to 8 percent of 2005 records. The image records are indicative of primary clinical images and on average there are 3 derivative files associated with each (TGA, TXT, ABS).

- The 2006.81 ENTRIES value provides a gross estimate of the number of clinical display and capture workstations.

- The WS DIS VERS and the WS CAP VERS provide an array of the various versions of capture and display applications and the number of workstations that have last used those versions. The syntax is 'WS Application: version #^# of WS. It is recommended that all WS be kept current with the latest release of the clinical workstation software. A small array of WS versions would reflect a small number of different versions. A large number of inactive clinical workstations confuses this issue.

- The VistaRad Version line is used for **V*IST*A** Rad sites only.

- The DICOM Error Log is a gross indicator of deletions and incomplete transmissions.

- The DICOM FAILED IMAGES count should be low (See the **V*IST*A** Imaging DICOM Gateway User Manual for instructions for Failed Images management documentation).

- The Queue File count is a gross measure of capture and display activity.

- The Unprocessed Queues is a gross indicator of queue file management. If this value is higher than 3 figures, then use Queue Manager to either retry or purge these entries.

- The "30 Day Image Workstation" values provide an estimate of **V*IST*A** Imaging usage.

- The BP VERS NUM DATE array provides the Version, Build, and release of the Background Processor (BP) in the first '^' delimited piece, the workstations operating system (OS) in the second delimited piece, the number of BP workstations with this combination of BP application version and OS and the date of latest activity of this configuration (i.e.: BP VERS NUM DATE: 2.5.11.4^Win NT.4.0.1381^1^6/1/00).

- The **V*IST*A** Image Version/Build indicates the current KIDS version installed on the **V*IST*A** hospital system (i.e.: **V*IST*A** Image Version/Build: 2.5T11^D).

- The DICOM Gateway Version shows the version and build date of DICOM the executable running on the gateways. The second '^' delimited piece is the number of gateways using this version (i.e.: DICOM Gateway Version: 2.5T; DICOM2.5T;;6-October-1999^2).

7.5 Image Cache Critically Low Message

The Image Cache Critically Low message is generated automatically when the Background Processor is unable to update the network write location within the **V*IST*A** Magnetic Cache (VMC). This happens when the low level mark has been reached and the current location has only 5% (default value) of its capacity available at the time this message is generated. The following is a sample Image Cache Critically Low Message:

```
Subj: Image Cache Critically Low at OAKMONT.VA.GOV  [#118174]
18 Sep 2000 15:22:38 -0600 (CST)  12 lines
From: <DISHER.MARY_G@OAKMONT.VA.GOV>  In 'CRITICAL' basket.  Page 1
------------------------------------------------------------------------
-----
SITE: OAKMONT.VA.GOV
DATE: SEP 18, 2000@15:22:38 CST
SENDER: Imaging Background Processor
The 3 Imaging cache servers will
require operator intervention to ensure continued
availability.  The following MAG SERVER members
are being notified:
DUPONT,ANNA E
SERDEN,DARLA
G.IMAGING DEVELOPMENT TEAM@FOR
The next notifications will occur in:
6 hours.
```

This mechanism ensures that the remaining cache locations can be manually referenced during the free space recovery process (BP Purge) that the **V***IST***A** Imaging System Manager MUST initiate. It is advised that while the purge is running the Auto Write Location update process be turned off (see Site Parameters). The Network Write Location and the PACS Write Location should be manually updated to different locations (see Site Parameters section).

Chapter 8 Background Processor Maintenance

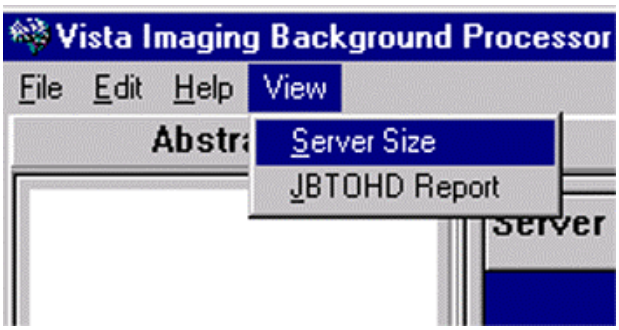
8.1 BP Troubleshooting

This section describes shooting methods for types of problems that may be encountered.

8.1.1 Network Connection Problems

Check the status of all the online VMC and jukebox shares by one of the following means:

1. From the Main BP window, start the Server Size option from the View Menu.



2. Using Explorer, show the properties of the VMC and Jukebox shares.

3. From the command prompt execute a dir <sharename>/*.

If any of these methods fail, attempt to ping the devices from the command prompt. Also, ensure that the signed-in user has been assigned adequate network privileges.

8.1.2 Invalid Log In

Close and restart the application, as client applications will frequently be disabled after a system error or timeout. Possible other causes for this type of problem include:

- The "MAG SYSTEM" security key is not assigned to the logging on user.
- The "MAG WINDOWS" menu option is not designated as a users secondary menu option.

8.1.3 Not Enough Server Cache

Examine the "online" status of each of the designated VMC shares.

1. If the "critical low" threshold has been reached on all devices, toggle ‘off’ autowrite update.

2. Set the write location manually to a share with cache space available.

3. Launch a second BP {Start|Programs| **V*IST*A** Imaging Programs|Background Processor} and start the purge process {File|Purge on the 2nd or new BP}. See Section 4 for additional information about purging.

8.1.4 Not Enough Process Memory

Close all the applications and reboot the BP WS.

Note: If problem persists, please contact the V*IST*A Imaging support staff through NOIS.

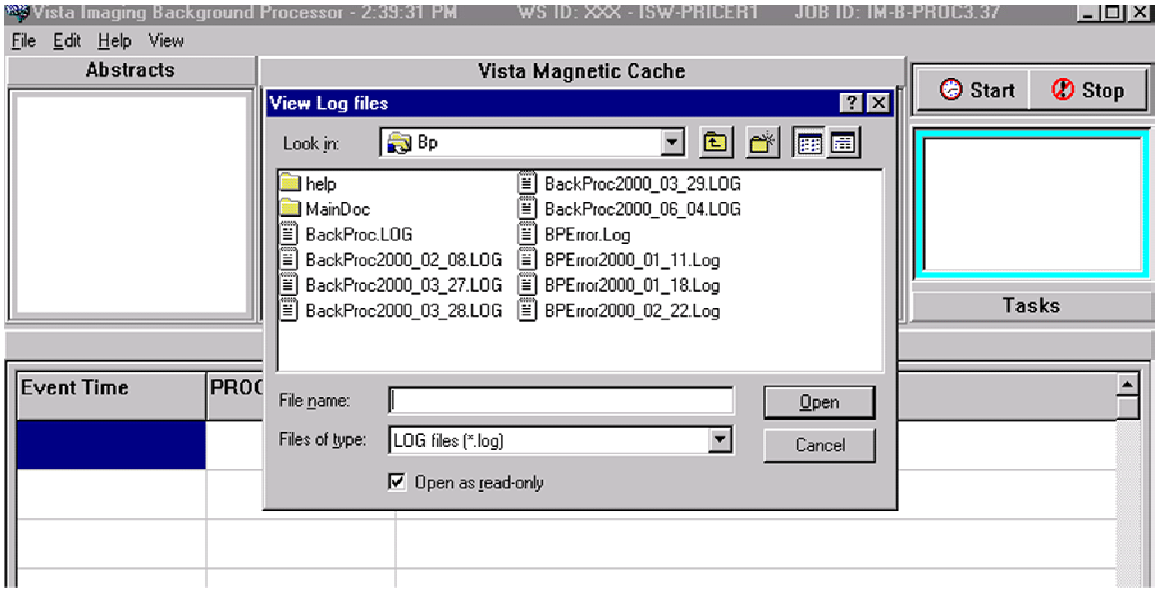
8.1.5 Not Enough Formatted and Online Jukebox Platters

Check the Disk Extender utilities for availability of jukebox platters (See the **V*IST*A** Imaging Installation Guide or Technical Manual for more information).

8.2 Evaluating Event Logs { File|Open Log }

- Event logs often contain information that will assist in troubleshooting.

  Open Log (File|Open Log)



- The Open Log provides access to the event capture and error logs for the Background processor queue processing and purge activities. Selecting a file opens an edit session that provides search and print functions as a management tool.

8.3 Queue file management {Edit|Queue Manager}

- When a foreground process such as the Clinical Workstation application requests that a clinical image be saved to jukebox or retrieved, it creates an entry in the queue file that identifies the file and the file process as part of the queue parameters. When the

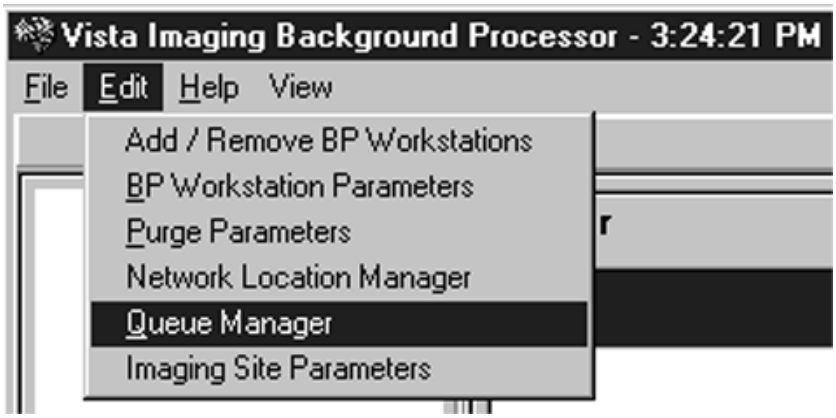
Background Processor successfully completes the queued request, the queue entry is deleted from the queue file. If the task fails, the queue entries remain in the queue file with a status that may help explain the reason for the failure.

- Generally, the cause of queue failure is related to network connectivity or jukebox maintenance. Often these failed queues would successfully complete if they were re-queued. However, a site that has experienced a backlog of file requests will want to avoid processing old requests because generally a small portion of these requests are still needed at a later time. It is important to '*Retry*' (re-queue) the Jukebox copies as they represent requests to archive clinical images and must be processed.

- It is important to periodically evaluate and requeue or purge failed queues to ease management of recent failed queues when a local network interruption events occur.

8.4 Start the Queue Manager

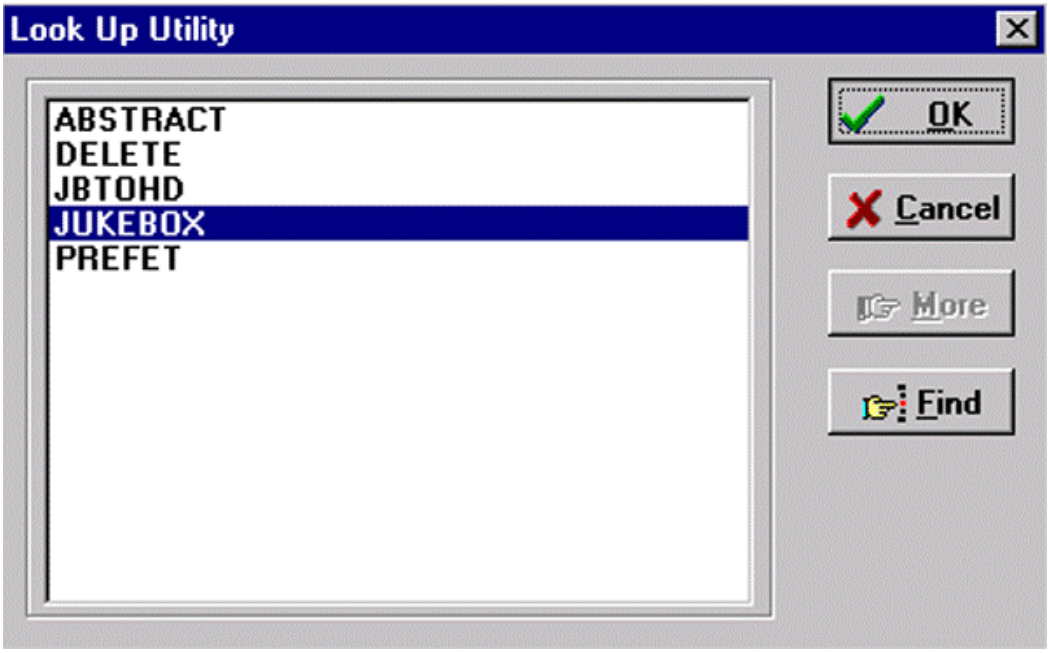
Use the Edit | Queue Manager menu option on the Background Processor to start the Queue Manager.



- Queues are managed one type at a time.
- Queue Type Statuses may be processed one status at a time, including 'nil' statuses, or 'All'.

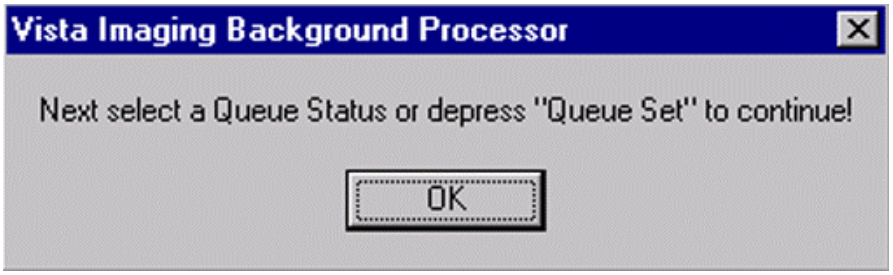
8.4.1 Select Queue Type

Next, use the Look Up Utility to select the queue type to be manager:



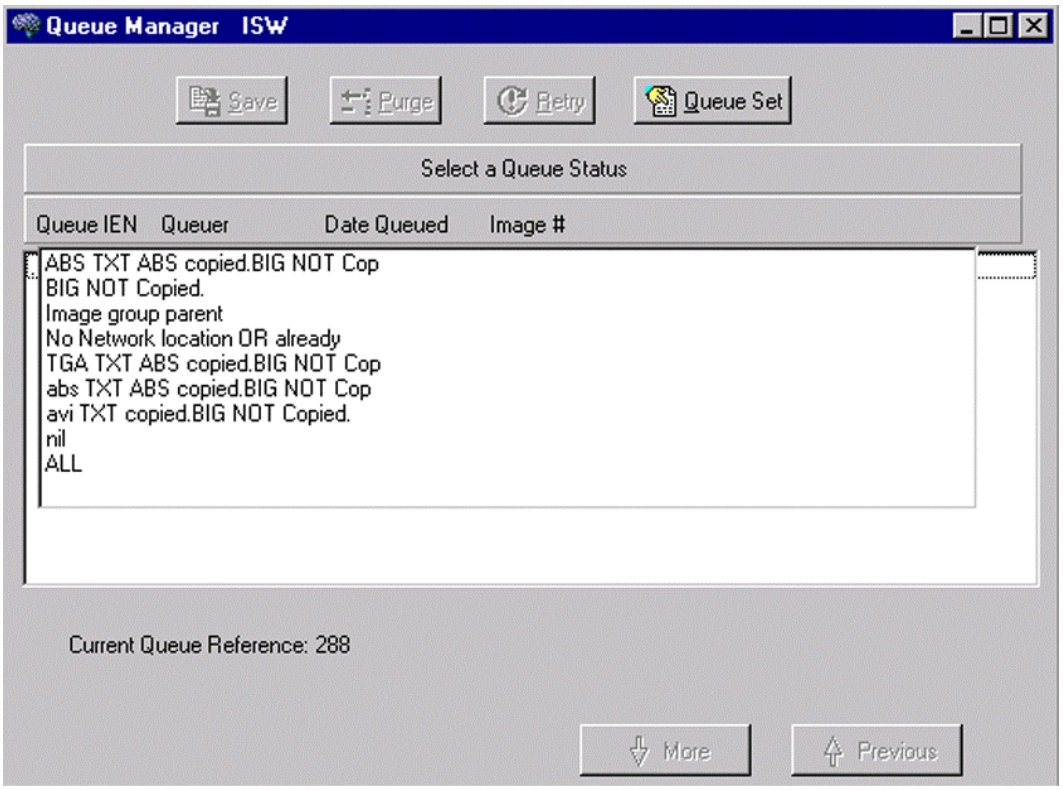
8.4.2 Select Queue Status to {Save, Retry, or Purge} or Queue Set

An instruction box will display as follows:



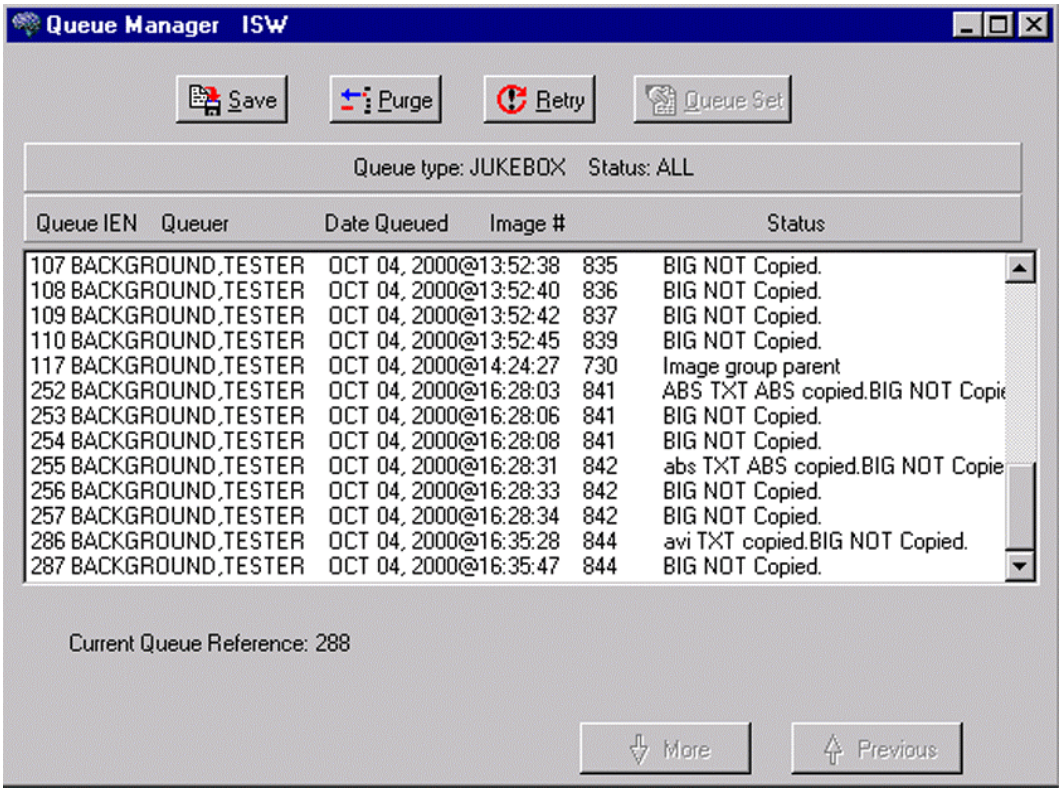
1. Either click on the long button labeled “Select a Queue Status” to requeue, save, or delete queue entries, or…

2. Click on the button labeled “Queue Set” to change the point in the queue where processing is taking place.



8.4.3 Save, Retry, or Purge

This window allows selection of the queue entries defined by the "Queue Type". In this case, JUKEBOX and the "Status" ALL were selected in the above steps.



- Individual queue entries may be selected using the mouse. Multiple sequential queue entries may be selected by highlighting the first queue entry and by holding down the shift key while highlighting the last queue entry in sequence. Another method is to hold down the shiftkey while depressing the keyboard down or up arrow to scan the list. Multiple non-sequential entries can be selected by holding the Ctrl key while selecting individual queue entries.

- The Save, Purge, and Retry buttons operate on selected queue entries. If NO queues are selected, the same buttons operate on ALL queue entries in the current list box.

- The SAVE button initiates a "Save As" dialog for selected queue entries or ALL of the list box queue entries. This option saves entire queue entries to a text file. There are no current utilities for processing these text files, they will be archived to provide a useful history of queue processing failures.

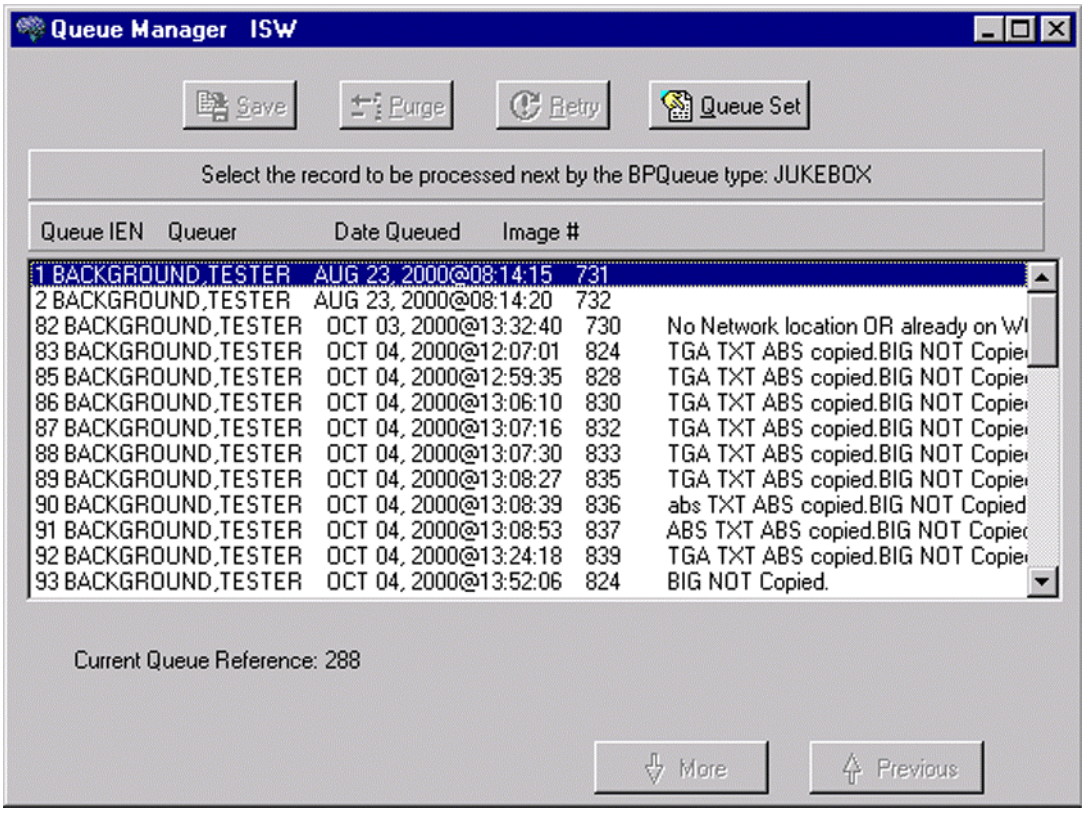
- The PURGE button is used to delete the selected queue entries or ALL of the list box queue entries from the queue archive.

- The RETRY button will cause the selected (or all in the current list if none are selected) to be re-queued. This means the file requested, the queuing individual, the date of

queuing and the status will be reconstituted in a new queue entry at the end of the queue list, and the selected queue will be deleted. This is useful when the cause of the previous failure has been eliminated.

8.4.4 Queue Set

The Queue Set button provides a method of determining the next queue entry to be processed. If the Queue Set button had been clicked instead of the selecting a status, the user would see the following:



An earlier queue can be selected here to reprocess failed queues OR the user may wish to skip (more often the case for JBTOHDs) forward in the list of queues to avoid image archival processes that are of reduced priority or no longer necessary. Select a queue entry by highlighting a single line item. Then click the 'queue set' button a second time. A confirmation message will be displayed with the new 'Current Queue Reference'.

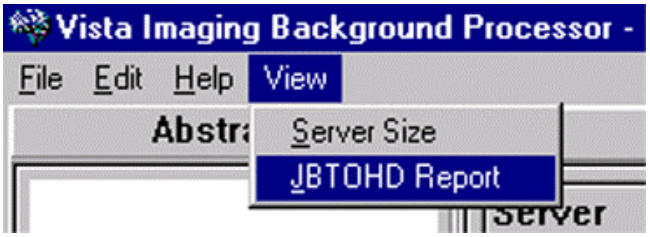
The limit of queues that can be displayed in a given list box here is 250. The '*More*' and '*Previous*' buttons maybe used to navigate the entire queue file of the selected queue type in order to select the position of the next queue process.

8.4.5 Queue Management Considerations

Queue entries reflect requests to move files to and from the jukebox (with the exception of Abstract and Delete queue entries). Normally, old JBTOHD queue entries should not be re-queued, as these files usually reflect old requests that, for the most part, will no longer be needed on the VMC. The Jukebox copies should be re-queued in order to have a jukebox backup image copy as soon as possible. The Queue Set button will request a listing of all queue entries including both active and non-active queue entries of the selected queue type. The list may be perused and the current pointer reset to the one selected by the user.

8.5 JBTOHD Report {View|JBTOHD:Report}

This option is designed to allow the **V***IST***A** Imaging System manager to look at the content of the jukebox-to-hard drive copy queue (JBTOHD).



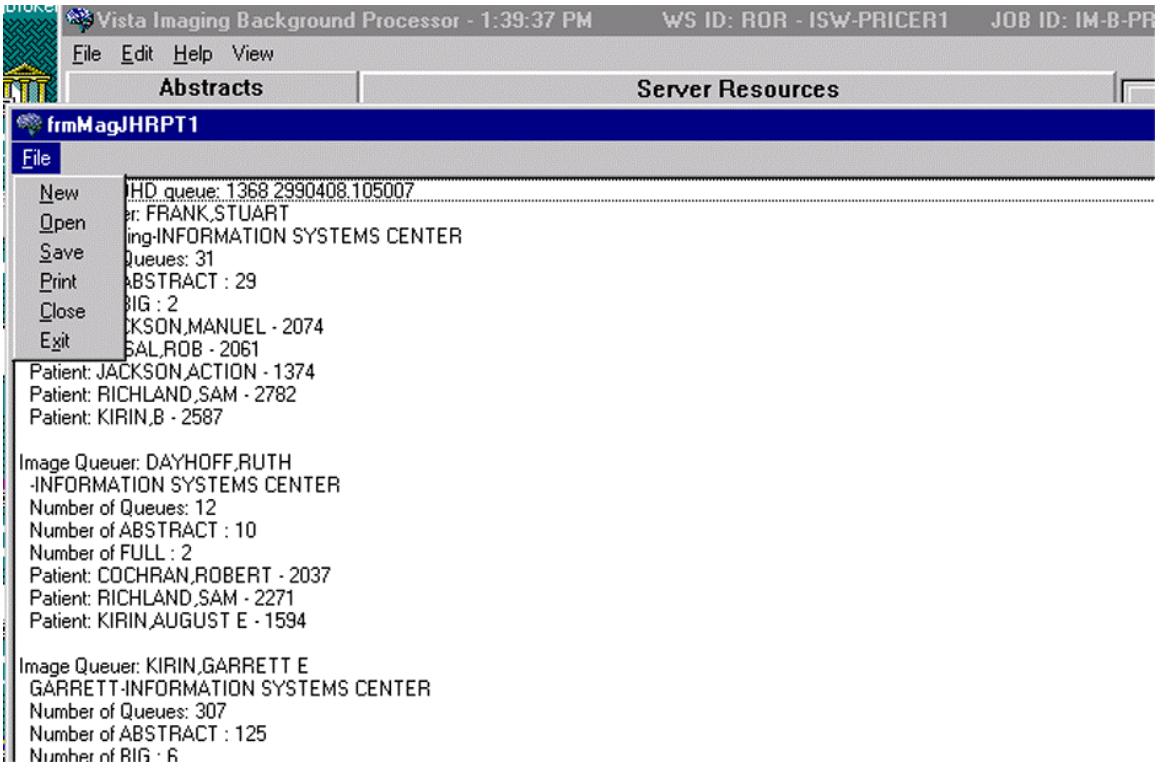
This information should allow the user to accurately advance the JBTOHD queue reference so that in a crisis, specific images can be made available.

For example, at a filmless radiology test site: the hospital's local area network has experienced network connectivity issues that result in a backlog of archive retrievals (JBTOHD). An emergency arises in which a care provider requires a previous film immediately. If the **V***IST***A** Imaging System Manager knows the provider and patient identity, then by listing the JBTOHD report, the queue entry can be identified and the queue process started at the right place.

Select New to create a current report.

- Reports can be Saved.
- Old reports can be Opened.
- A Print option is provided.

The JBTOHD queue display is sorted by the individual who queued the entry. It displays the number and types of queues. It displays the patient along with the queue IEN to facilitate advancing the queue pointer.

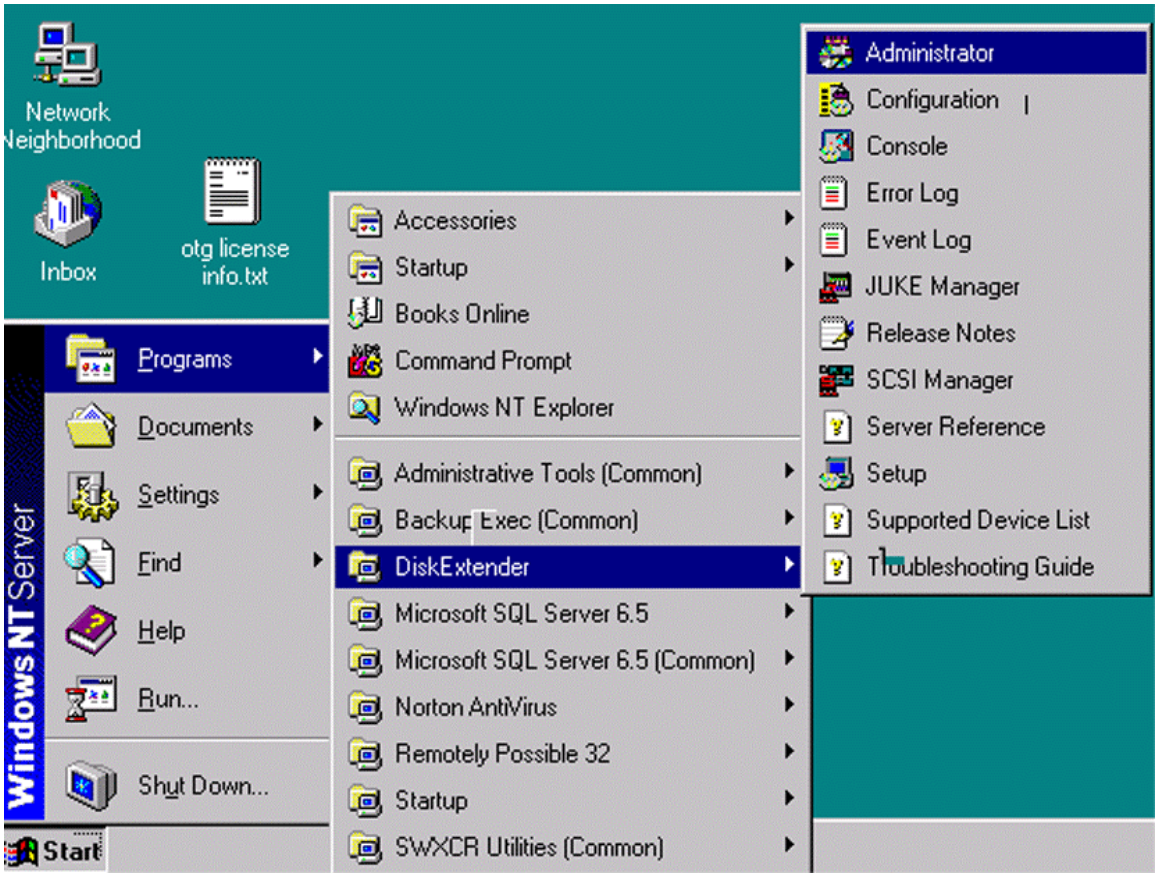


Appendix A OTG Database Maintenance

A.1 Rescheduling the OTG Database Maintenance

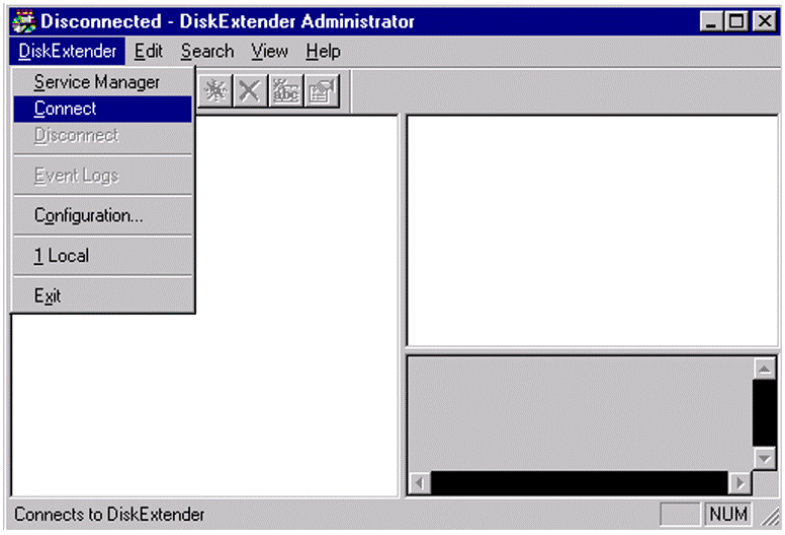
In order to avoid conflict with the purge or verifier processes, the OTG database maintenance must be rescheduled.

1. Launch the Disk Extender Administrator application from the Disk Extender menu.

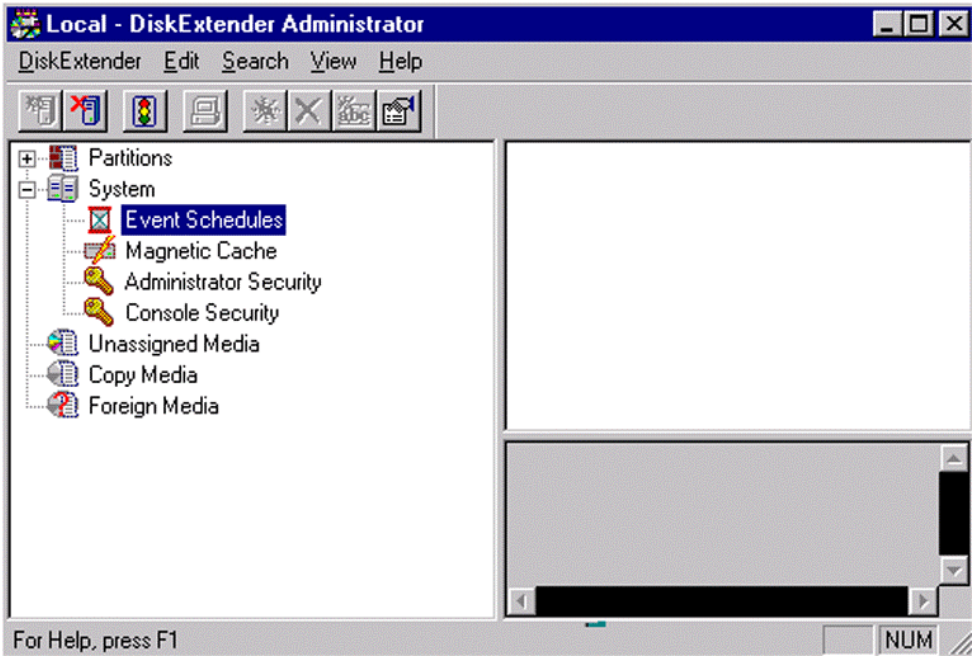


.

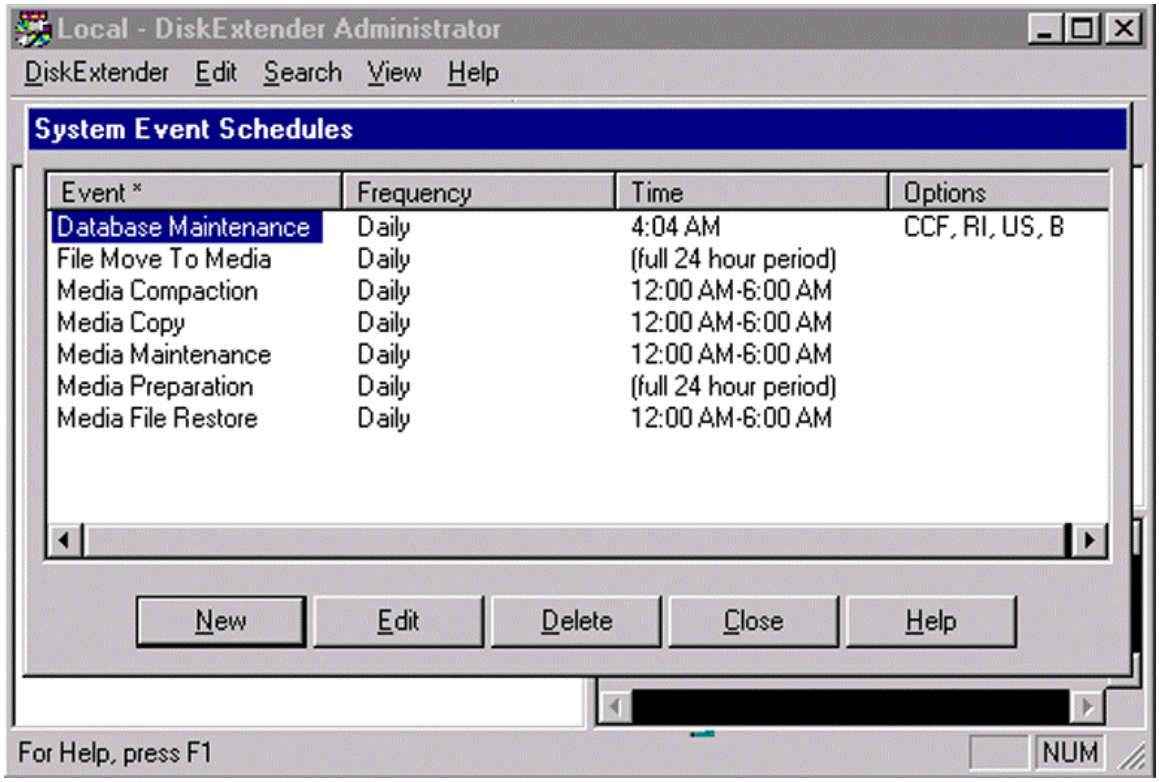
2. Click on the connect menu option (DiskExtender | Connect).



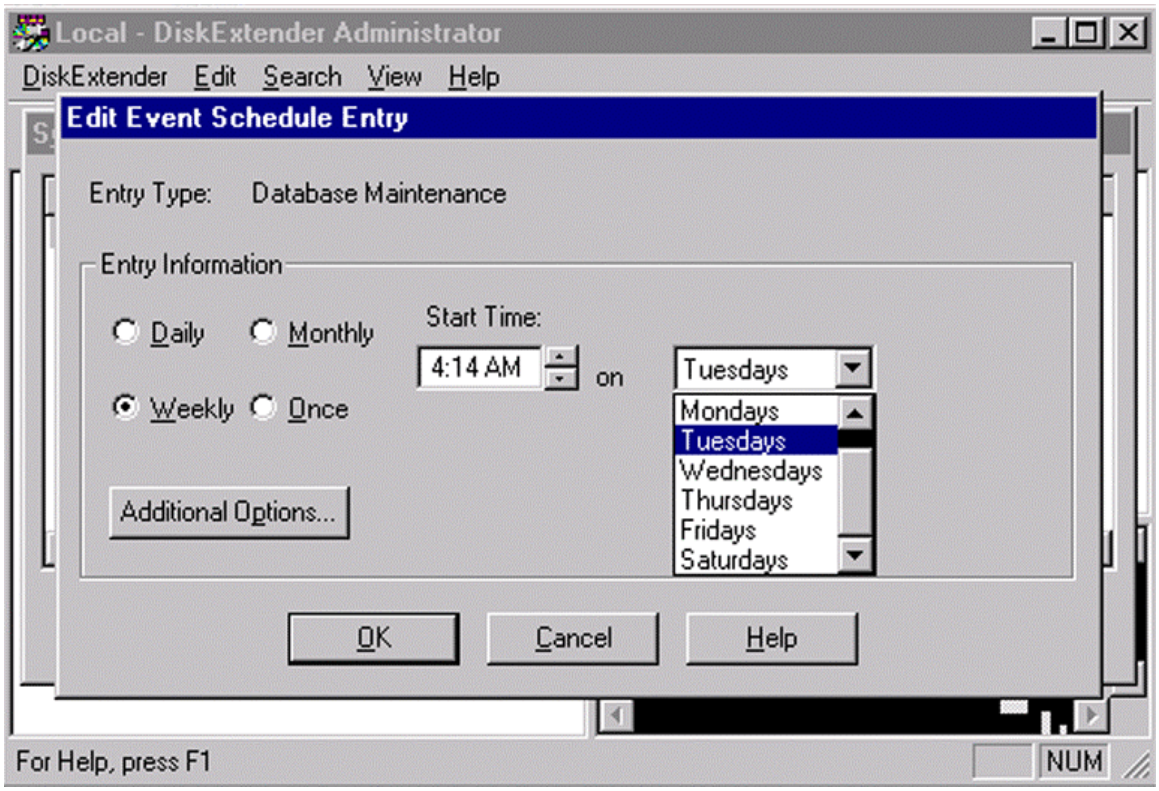
3. Expand the System tree by clicking on the plus (+) sign and Double-click on Event Schedules.



4. Double-click on the Database maintenance item under the Event heading.



5. Select *weekly* for the database maintenance to occur. Then, select the previous day of the week and a time that will not conflict with the today and tomorrows purge or verifier process or with daily Imaging System usage.



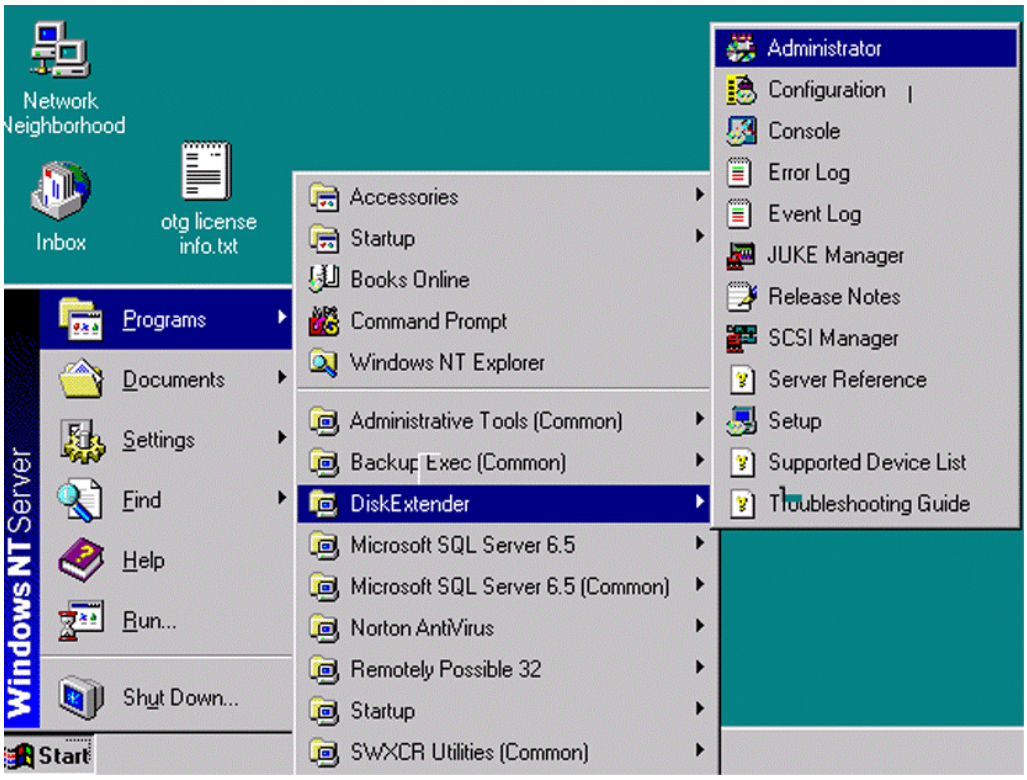
6. Click OK to apply these options.

7. When the Purge or Verifier Activity is complete, **remember to…**

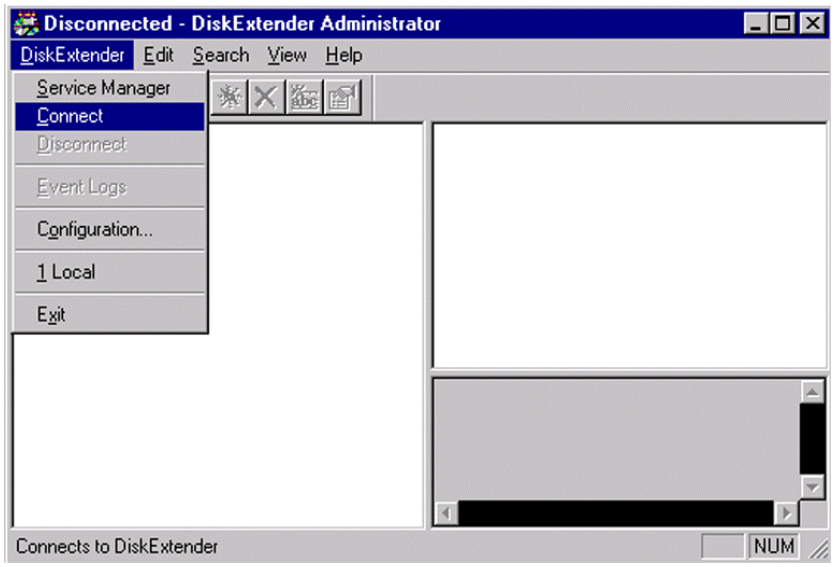
   RESTORE NORMAL OTG Database MAINTENANCE SCHEDULING!

A.2 Scheduling Normal OTG Database Maintenance

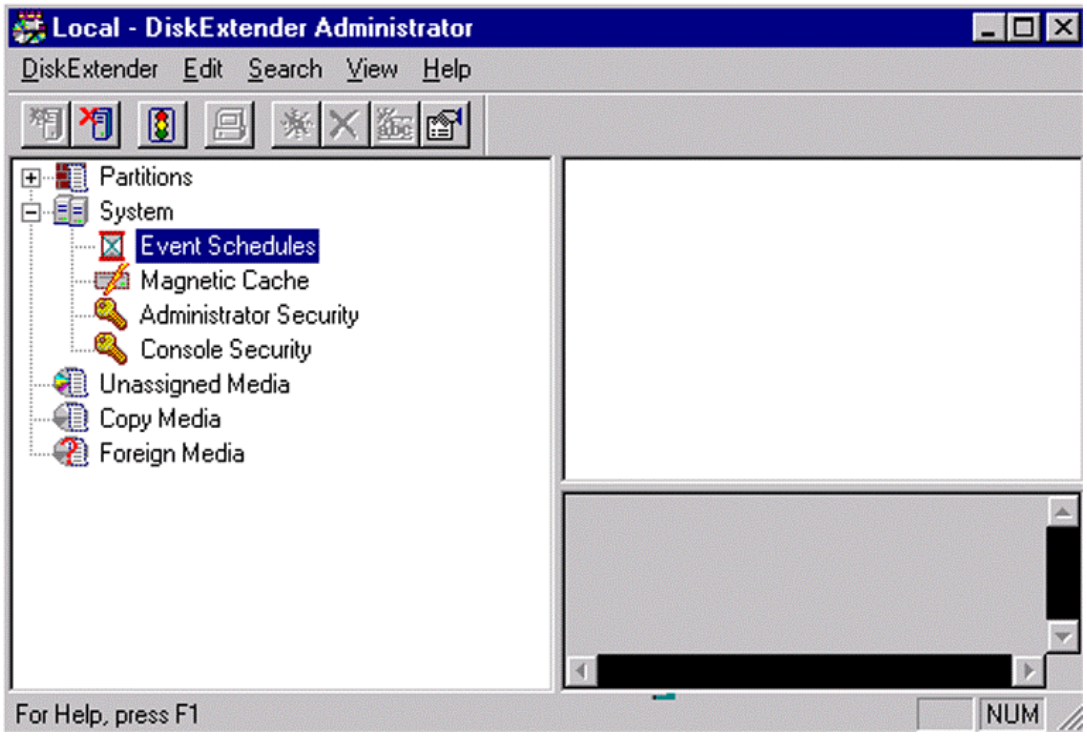
1. Launch the Disk Extender Administrator application from the Disk Extender menu.



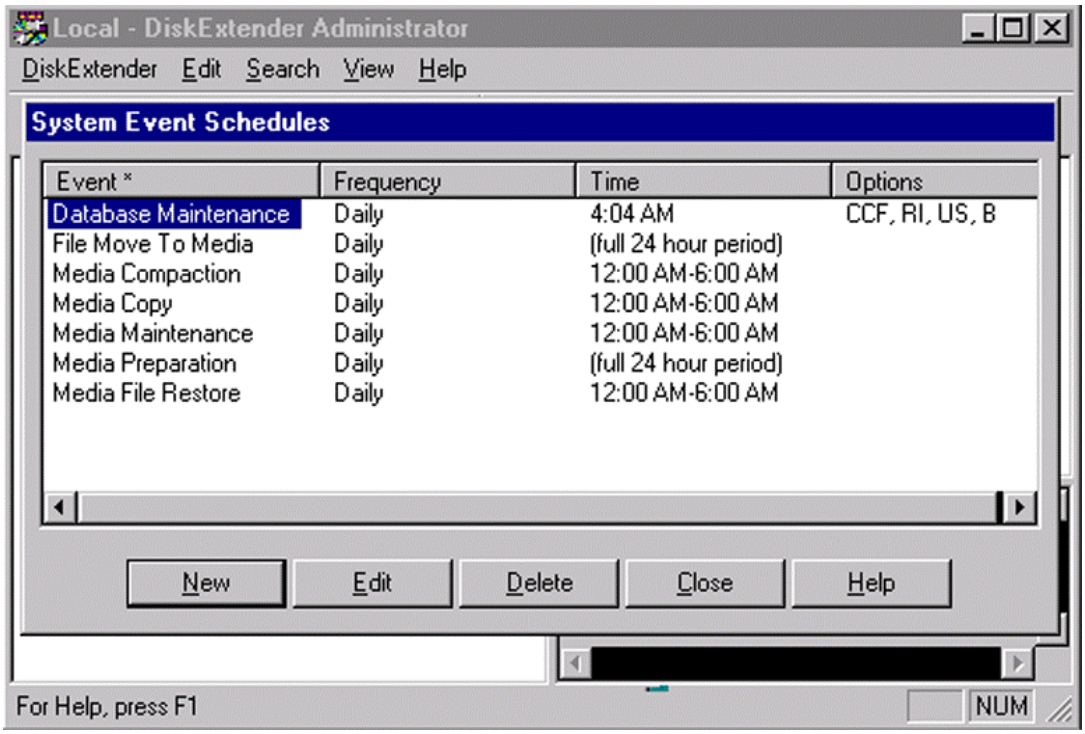
2. Click on the connect button.



3. Expand the System tree by clicking on the plus (+) sign; then, double-click on the Event Schedule.



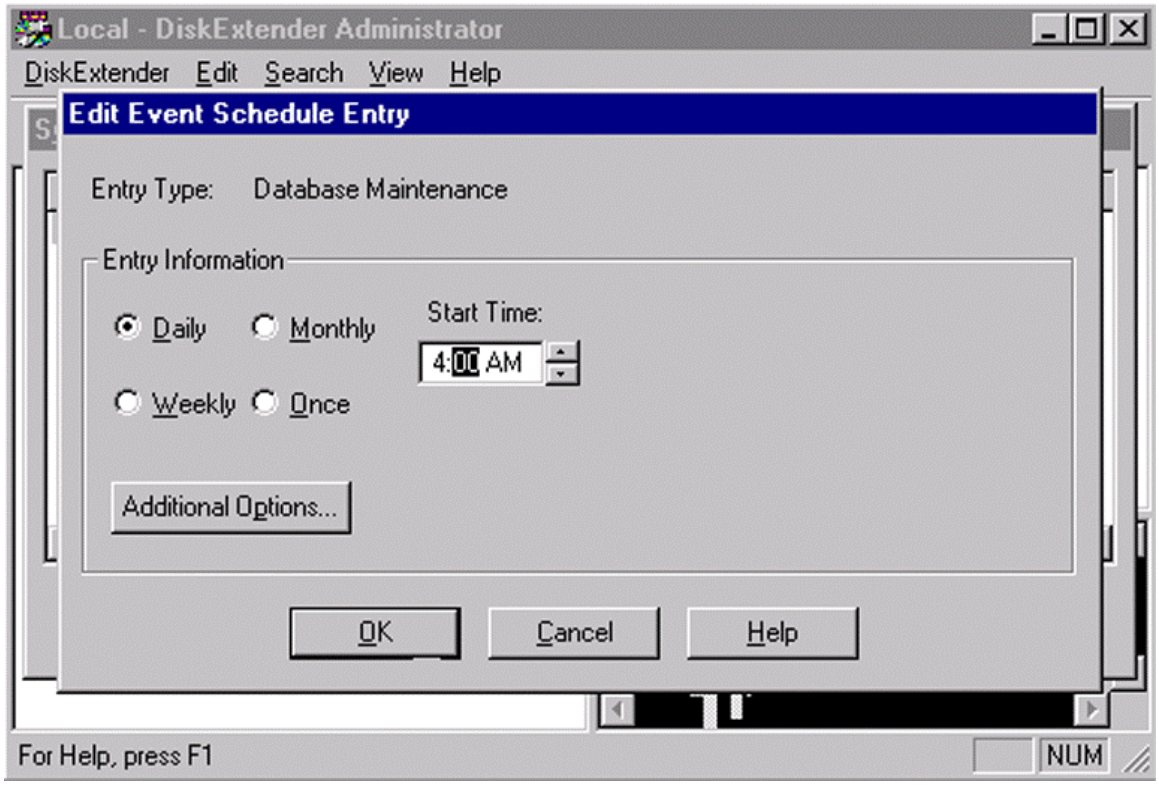
4. Double-click on the Database maintenance item.



5. Schedule a daily time for database maintenance to occur (i.e., 4:00 am). The software defaults to the current time and that will invariably be inappropriate.

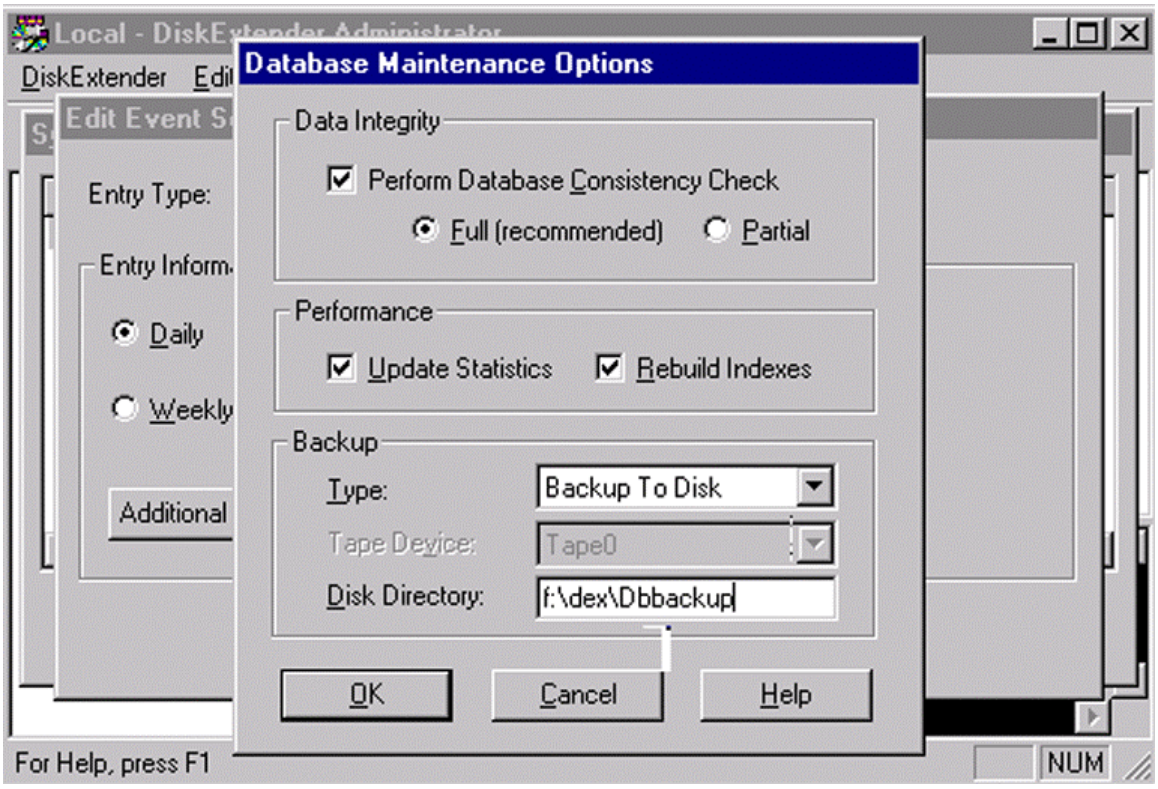
   Note: It is important to realize that the Background Processor will not have access to the Jukebox during maintenance and will suspend operations until the maintenance activity is finished; no auto-write location updates will occur; and archived jukebox files will be unavailable to the Clinical workstations. The 4:00 am time is suggested to…

   - Minimize the impact on production activity
   - Reduce the window of time between the start of this procedure and the beginning of the new day (**Note**: This ensures that personnel will be available to recover or restart any of the **V*IST*A** Imaging components that may be affected by this operation)



6. Click on the Additional Options button.

7. Check “Perform Database Consistency Check”.



8. Check “Full”, “Update Statistics”, and “Rebuild Indexes”.

9. Select “Backup to Disk” from the *Type* Pull Down list and specify a path to a directory that is regularly backed up to tape (i.e., d:\dex\Dbbackup). This should be the directory that contains the file: “DEXDISK.DAT”.

   Note: It is very important that this file gets backed up to tape regularly as it holds all of the information about the location of image files on the jukebox platters.

10. Click OK to apply these options.

Appendix B Log File Tables

Certed.log

Position	Field	Comments
1	IEN number	
2	Targa filename	
3	(Network location of JB) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the jukebox.
4	(Network location of JB "FBIG") ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the jukebox.
5	(Network location of ABS) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
6	(Network location of TGA) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
7	(Network location of BIG) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
8	Network Location of Current Write Location	Found in Imaging Site Parameters File (Node 0)
9-11	JB Shares	Additional jukebox shares

Scan.log

Position	Field	Comments
1	No type JB Files No type VC Files OR Scan	Error message Type is BIG, ABS, TXT or FULL.
2	Current date/time	
3	IEN	
4	Targa filename	

Position	Field	Comments
5	(Network location of JB) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the jukebox.
6	(Network location of JB "FBIG") ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the jukebox.
7	(Network location of TGA) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
8	(Network location of ABS) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
9	(Network location of BIG) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
10	Network Location of Current Write Location	Found in Imaging Site Parameters File (Node 0)
11-13	JB Shares	Additional jukebox shares

ScanError log

Position	Field	Comments
1	No .TGA file + no .Big source No .TXT file: No .Big/.Big expected: No .Big associated .Txt file: BigToAbs failed: No VC Full: No VC Full associated .Txt file: Not Certed: Copy of: Not Getnext Result1: Aggregation Failure Error:	No Targa or BIG file found for IEN. No text file found for IEN. The FBIG node indicated a JB location but no Big file found on it. BIG file found on JB but no associated text file. No Targa file exists to create abstract. No Targa file found on magnetic shares. No text files found on magnetic shares for Targa file. Could not create "certed.log" file. File is of size 0 on given path. Indicates verifier has processed all IEN's in the range. Missing location of alternate jukebox share.

Position	Field	Comments
2	IEN	
3	Targa filename	
4	(Network location of JB) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the jukebox.
5	(Network location of JB "FBIG") ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the jukebox.
6	(Network location of TGA) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
7	(Network location of ABS) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
8	(Network location of BIG) ABS,TXT,BIG,TGA	The file extensions are only listed if they exist on the magnetic.
9	Network Location of Current Write Location	Found in Imaging Site Parameters File (Node 0).
10-12	JB Shares	Additional jukebox shares

Purge.log

(TGA, ABS, BIG
extensions - only)

Position	Field	Comments
1	Action	-3 = FOREIGN FILE, DO NOT PURGE -2 = QUEUED FOR JUKEBOX COPY, DO NOT PURGE -1 = DO NOT PURGE 0 = PURGE('MAG 2005 ENTRY)!('JUKEBOX PTRS & 'EXCEPTIONS) 1 = PURGE GIVEN NORMAL DATE CRITERIA (NDC) + CONFIRMED ON JB 2 = PURGE GIVEN NDC IF TGA PRESENT 3 = PURGE IF FILE IS AT ALTERNATE NETWORK LOCATION SITE ELSE PURGEIF AGED & UPDATE FILE REFERENCES 4 = (**NA**)AGE PURGE IF ON JUKEBOX, UPDATE FILE REFERENCES ELSE UPDATE FILEREFENCES, QUEUE JUKEBOX COPY 5 = PURGE IF AT ALTERNATE SITE,QUEUE JUKEBOX IF NOT ON JB 6 = PURGE GIVEN NORMAL DATE CRITERIA
2	Image Type	0 = NON-PACS 1 = PACS

Position	Field	Comments
3	Status	1 = 'NO 2005 ENTRY 2 = RADIOLOGY HOLD 3 = NO JUKEBOX/JUKEBOX PTRS 4 = JUKEBOX - NO JUKEBOX PTRS (P/EXCEPT)ELSE QUEUE 5 = JUKEBOX/JUKEBOX PTRS, NO CACHE PTRS,PURGE IF CONFIRMED 6 = JUKEBOX/JUKEBOX PTRS, WRONG CACHE PTRS PURGE IF AT ALT 7 = JUKEBOX/JUKEBOX PTRS, NO CACHE PTRS, FIX PTRS 8 = JUKEBOX/JUKEBOX PTRS, CACHE PTRS, AGE (IF CONFIRMED) 9 = RECORD NOT IN THE IMAGE FILE 10 = FOREIGN IMAGE FILE 11 = NOT AN IMAGE FILE 12 = FILE LOCATION NOT VALID 13 = DELETE 2005 ENTRY (LAST LOCATION REFERENCED)
4	Jukebox pointer	Physical location of the jukebox
5	IEN	
6	RAID pointer	Location of file on RAID
7	Last Access Date	Date file was last accessed

(TXT extension – only)

Position	Field	Comments
1	"TxtLastFile"	
2	RAID pointer	Location of file on RAID
3	Last Access Date	Date file was last accessed

Glossary

Abstract	A “thumbnail” version of an image, which requires less computer processing resources to display than the actual image.
Aggregate	To gather together as into a single referenced location
Archive	The long-term storage of data or images.
Auto write update	To allow the BP to set the current network write location to the VMC share with the largest percentage space available.
Background processing	Simultaneous running of a “job” on a computer while working on another job. Examples would be printing one document while working on another, or the software may do automatic saves while you are working on something else.
BPWS	Background processor workstation
Critical low message	A notification mechanism to alert key personnel that the on-line storage availability is in conflict with an active Background processor.
Current Queue pointer	Queue type specific database reference to the next file copy, create, or destroy request.
Current write location (CWL)	The designator or reference to the network share that will be receiving **V***IST***A** Magnetic bound image files. This includes both newly acquired and recently demanded images.
Event log	Visual text display of activities of the Background processor, purge processor, and verifier. The displayed events are also captured in an application subdirectory ASCII text log file.
File	All the data that describes a document or image.
File server	A machine where shared software is stored.
File server cache capacity	Both a textual and graphical display of VMC size and free space.
Imaging system	Collection of units that work together to capture and recreate images.
Jukebox	A device that holds multiple optical discs and can swap them in and out of the drive as needed

	in and out of the drive as needed.
Login (Logon)	Procedure for gaining access to the system or program.
Migration	Movement of files to and from the secondary storage (the jukebox) and the **V*IST*A** Magnetic Cache (VMC)
Mouse	Hand driven input and pointing device.
Off-line	A **V*IST*A** Magnetic Cache (VMC) designation used to isolate shares from autowrite candidacy and the purge function
On-line	Something that is available for access on the system.
Optical disc	A direct access storage device that is written to and read by laser light. Optical discs have greater storage capacity than magnetic media. Many optical discs are Write Once Read Many (WORM).
Purging	Removing of files from **V*IST*A** Magnetic Cache (VMC) when the last access date exceeds the age specification within the local site parameters. Files that are evaluated by the purge process must have verifiable secondary storage references or they are automatically queued for BP archival (Jukebox).
Queue	A request by the **V*IST*A** Imaging System to create, move, or delete a clinical image file for the purpose of system efficiency.
Queue pointer	Database file reference to the next queue to be processed within the queue file.
Referenced network files	Image file pointers to the network locations of each of the file types stored within the **V*IST*A** Imaging System.
Remote Procedure Calls (RPCs)	Callbacks provided by the client-server architecture supported by the **V*IST*A** host server and the Delphi client software.
Retrieval	The ability to search for, select, and display a document or image from storage.
RPCBroker	The Client-Server interface component.
Server	A computer that is dedicated to one task.
Site Parameters	A set of specifications that is configurable to meet the individual needs of each VAMCs **V*IST*A** Imaging System implementation.

Storage media	The physical device onto which data is recorded.
Verifier	A tool that validates the **V*IST*A** Imaging network file references. It also consolidates jukebox image files.
V*IST*A	Veterans Health Information System Technology Architecture. **V*IST*A** replaces DHCP.
V*IST*A Magnetic Cache (VMC)	The primary storage area for recently acquired and recently accessed clinical images.
Win32	The set Microsoft Windows operating systems internal function calls which support all operating system activity.
Workstation	A computer that is dedicated to a single type of task.
Write Once Read Many (WORM)	Once written to the disc, data is only available for reading and cannot be altered.

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